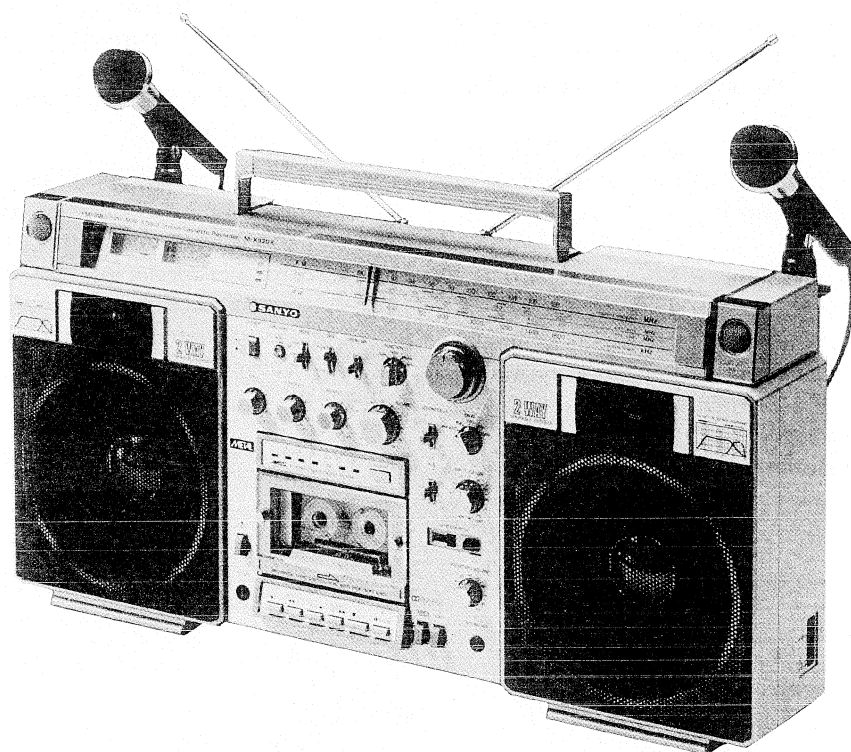


# SERVICE MANUAL



## CASSETTE RECORDER

# M-X920K



### SPECIFICATIONS

|                              |                            |                    |                                                 |
|------------------------------|----------------------------|--------------------|-------------------------------------------------|
| Recording system             | AC bias, 4-track stereo    | Frequency response | 30 — 14,000Hz (normal)                          |
| Erasing system               | AC erase, 2-track          |                    | 30 — 16,000Hz (CrO <sub>2</sub> )               |
| Tape speed                   | 4.75 cm/sec (1-7/8 i.p.s.) |                    | 30 — 17,000Hz (metal)                           |
| Rewind and fast forward time | 1 min. 40 sec. (C-60)      | Output power       | 16 W x 2 maximum (music power) at 2.5 ohms Load |
| Frequency range              | FM: 87.5 — 108MHz          | Power source       | DC: 15V "D" (UM-1) x 10                         |
|                              | AM: 530 — 1605kHz          |                    | 12-15V Car battery adaptor                      |
|                              | SW1: 2.3 — 7.3MHz          |                    | AC: 120/200/240V, 50/60Hz                       |
|                              | SW2: 7.3 — 23MHz           | Dimensions         | 651(W) x 190(D) x 320(H) mm                     |
|                              | MIC: 10 kohms (0.3mV)      |                    | (21-3/4" x 7-1/2" x 12-5/8")                    |
| Terminal impedance           | MIXING MIC: 3 kohms (1mV)  | Weight             | Approx. 10.5 kg (23 lbs.) including batteries   |
|                              | PHONO: 50 kohms (3mV)      |                    |                                                 |
|                              | LINE IN: 50 kohms (50mV)   |                    |                                                 |
|                              | LINE OUT: 3 kohms (0.775V) |                    |                                                 |
|                              | EXT SP: 2.5 — 8 ohms       |                    |                                                 |
|                              | PHONES: 8 ohms             |                    |                                                 |

\* Specification subject to change without notice.

## HOW TO DISASSEMBLE THE SET

Empty the battery case, and pull off the power cord before setting about disassembling works.

### 1. Removing the back lid

- (1) Remove 8 screws in all which are securing the back lid.
  - a. Remove 4 corner screws (pan head tapping 3x30 mm).
  - b. Lift rod antenna, and remove 2 screws (pan head tapping 3x14 mm) from upper central part of the set.
  - c. Take out 2 screws (pan head tapping 3x40 mm) from the battery case.
  - d. Set down the handle, if raised.
- (2) Hold the lower part of the back lid, and detach the fitting. Then lift parallel and remove the back lid, which is slightly heavy on the right side because of the power transformer.
- (3) Detach FM antenna socket from tuner PCB, and remove the socket from the power supply PCB, then the back lid can be dismounted.

### 2. Removing the chassis

- (1) Take out all knobs and buttons. If heavy, use a strong string or the like.
- (2) Remove 2 screws (round head tapping 3x12 mm) which are securing the chassis and cabinet near the root of the handle of the set. Then, remove another 2 screws (round head tapping 3x12 mm) securing the chassis to the bottom of the cabinet.

- (3) Pull out condenser microphone socket (150) 4P fitted to the left side above the preamplifier PCB, remove speaker socket (149) 4P fitted to the right side above the preamplifier PCB, draw out 3 leads for mechanism LED from the power amplifier PCB, and finally pull out lead wire (black) for AMSS from the socket near the middle part of the right side of the preamplifier PCB.

- (4) Remove 5 screws in all securing the chassis.
  - a. Take out a screw (pan head tapping w/washer 3x40 mm) from the lower right side of the tuner PCB.
  - b. Remove a screw (pan head tapping 3x40 mm) from the boss (65) which is inserted into the preamplifier PCB. (Loosen screw, pick up the head of the boss, then the screw and boss come out together.)
  - c. Remove the other 3 screws from the chassis central bottom part and the chassis beneath the left end of the tuner PCB.

- (5) Open the top lid, pull the chassis slightly to your side while lifting the lower part of the chassis, then the chassis can be disconnected from the cabinet. Now, the chassis and cabinet are separate.

\* When checking the operating condition in the separate state, fit all sockets removed so far (see above).

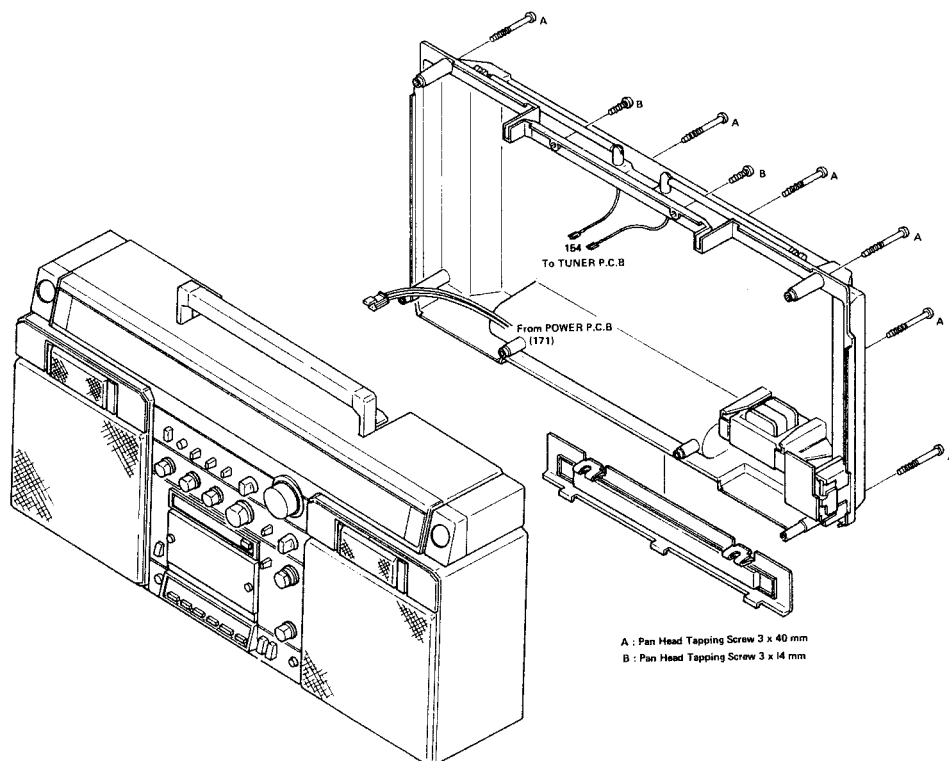


Fig. 1

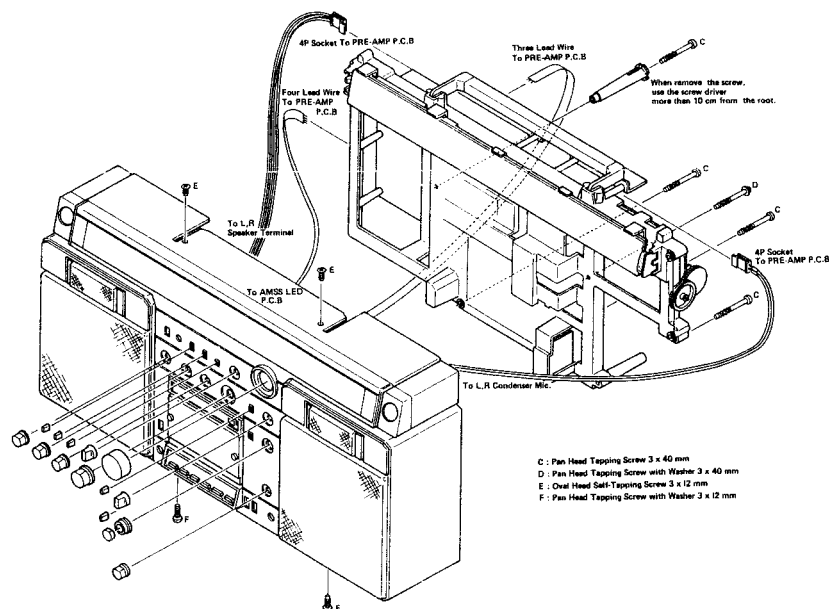
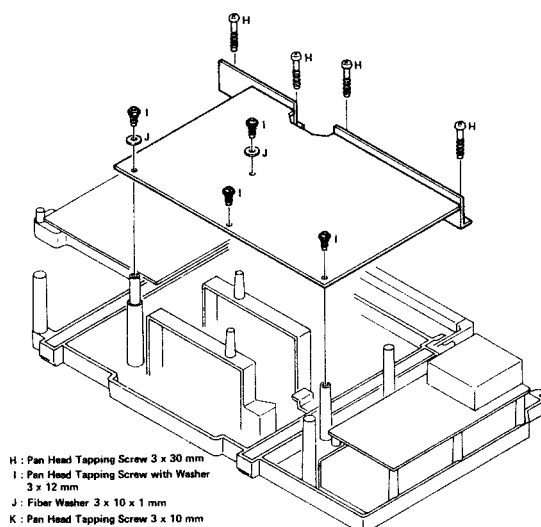


Fig. 2

### 3. Removing the preamplifier PCB

- (1) Remove 8 screws and 2 washers which are securing the preamplifier PCB.
  - a. Take out 4 screws (pan head tapping 3x30 mm) from bracket sockets (53, 64).
  - b. Take out 4 screws (pan head tapping w/washer 3x12 mm) and 2 fiber washers (3x10x1 mm) which are fastening the PCB and chassis.
- (2) Remove 2 screws (pan head tapping 3x10 mm) securing bracket switch (63) and chassis, from the pre-amplifier PCB side, by using a long-stem Phillips screwdriver.

Then, direct to the surface side (parts side), while paying attention to the sockets, jumper wires and lead wires, and the face and back of the preamplifier PCB will be sufficiently visible.



### REFERENCE

The wire used in connection between switches may be easily removed by prying off the two pawls on one side as shown. In this case, however, be careful not to damage the pawls.

When fitting the wire to switches, put the lead of the slide part of the wire into the switch hole or groove, and set up after making sure switching action of each switch is smooth and correct.

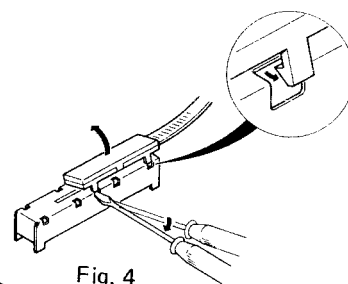


Fig. 3

#### 4. Removing the mechanism

- (1) With the chassis front side faced towards you, remove 5 screws securing the mechanism.
  - a. Take out a screw (pan head tapping 3x10 mm) from the upper right side of the counter bracket.
  - b. Take out a screw (pan head tapping 3x10 mm) from the upper left side of the counter bracket.
  - c. Remove 3 screws (pan head tapping 3x10 mm) from the lower right side, upper left side and lower left side of the mechanism.
- (2) Pull the mechanism towards you, and draw out, while paying attention to the sliding motion of AMSS buttons, then the mechanism can be dismounted. When replacing the belt, or the like, it is enough to detach the jumper wires of the auto-stop PCB (173). But, for easier replacement, remove the lead wires connected to the mechanism from the PCB.

#### ADJUSTMENT OF MECHANISM

| Item       | Tack up torque       | Back tension          | Pinch roller pressure |
|------------|----------------------|-----------------------|-----------------------|
| Used gauge | Cassett torque meter | Cassette torque meter | Tension gauge         |
| Playback   | 35~60gr.cm           | 2~6gr.cm              | 350gr±50gr.           |
| F. FWD     | 80~130gr.cm          | 2~6gr.cm              |                       |
| REW        | 80~130gr.cm          | 2~6gr.cm              |                       |

#### REPLACEMENT OF HEADS

Detach and attach the heads as shown when replacing them. Note the color of lead wires. Also, when soldering, be careful not to apply intensive heat to the head terminal parts.

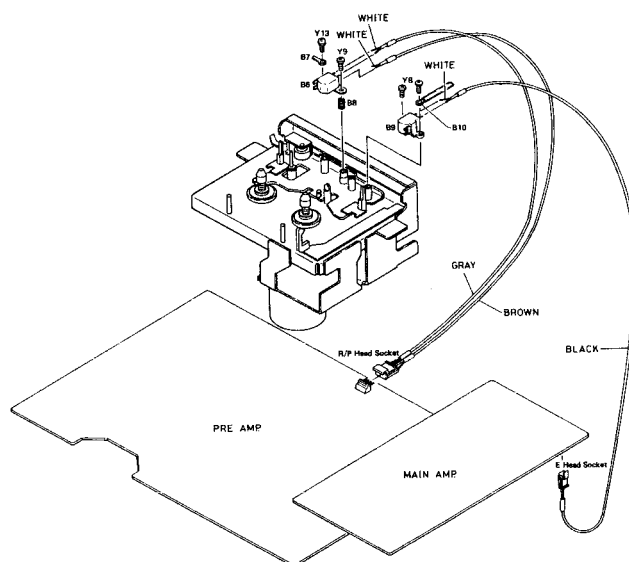


Fig. 6

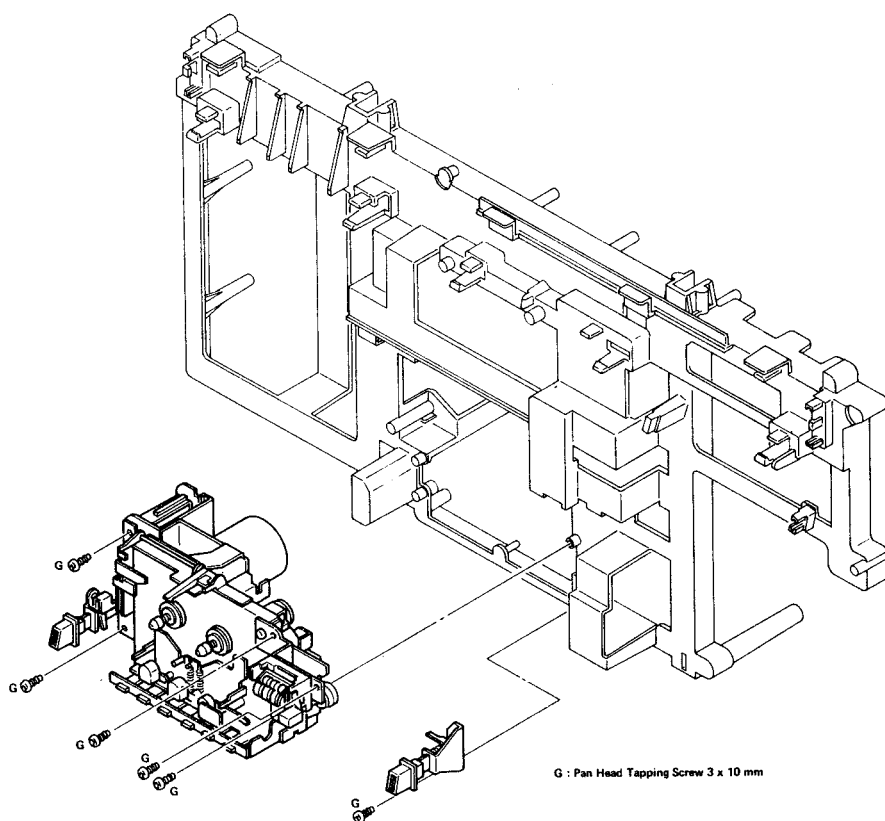


Fig. 5



## REPLACEMENT OF BELTS

- (1) Remove 3 screws (flat head tapping 3x6 mm) which are fastening the parts of eject mechanism.
- (2) Remove 2 screws (pan head taptight 3x5 mm) which are securing the flywheel bracket assembly.
- (3) Main belt and take-up belt can be replaced after steps (1) and (2). Counter belt, which is found on the cassette loading side, is threaded around the counter and reel plate, so that it can be replaced without loosening or removing any screw or part.

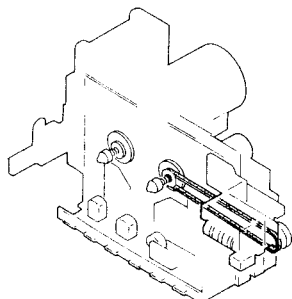


Fig. 7

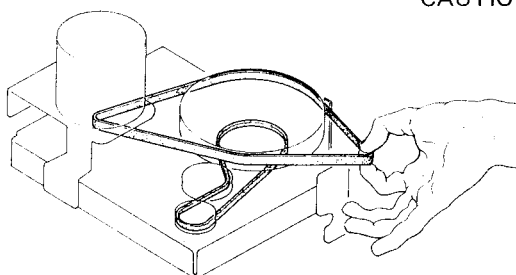


Fig. 8

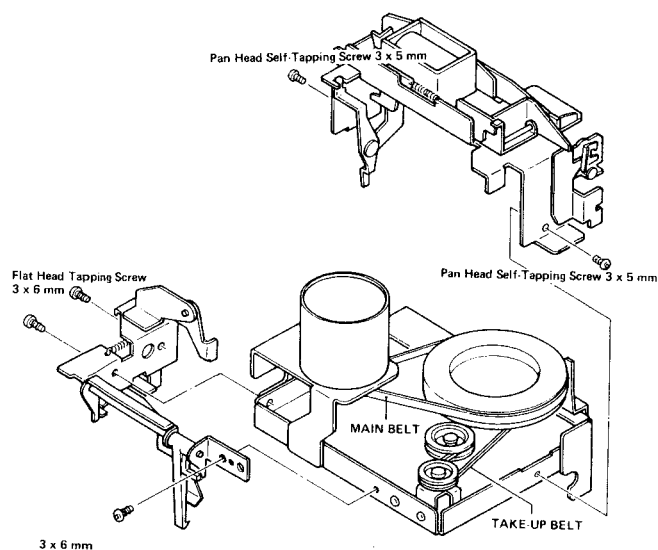


Fig. 9

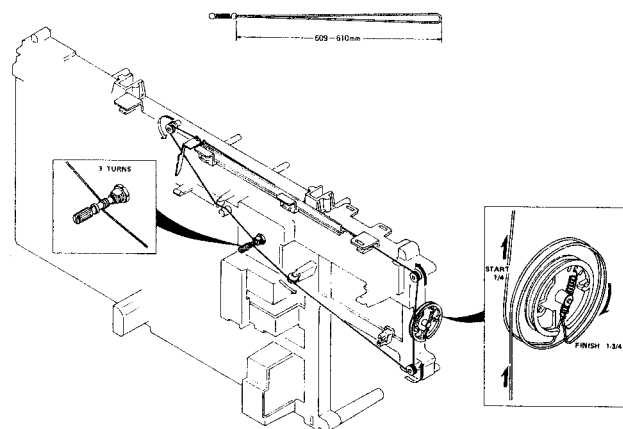


Fig. 10

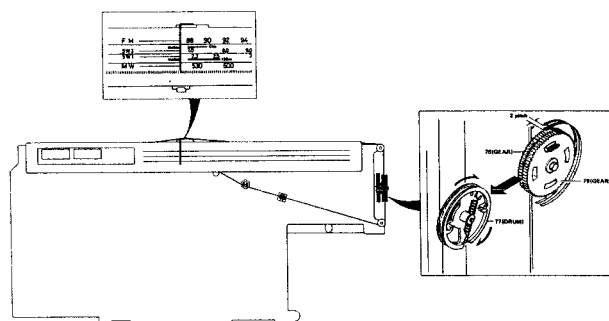


Fig. 11

## THREADING OF DIAL ROPE

- (1) Tie the dial rope to the spring coil so that the length when folded in double may be 609 to 610 mm.
- (2) Start threading the rope in the direction of arrow from the start point as shown in the sketch.

### Adjustment of base point position

- (1) Turn drum (77) clockwise to limit position, and stop.
- (2) Have gears (78, 79) of tuner PCB engaged with the gear of the drum.
  - a. Rotate gears (78, 79) to counterclockwise limit.
  - b. Keeping the pitch difference of the two gears (78, 79) by two threads, with gear (79) being advanced to gear (78), engage them with the gear of the drum (77).
- (3) Set the needle in place, stretch the rope taut a couple of times, and adjust the needle to the "0" marker line on the dial scale.

**CAUTION:** When fitting a new gear (79), since a boss is provided near the position of threading the spring coil (81) on the gear (79) side, get the two gears (78, 79) meshed with the drum gear, disregarding the pitch difference of the two in this case, and then cut off the boss by means of nippers. This ends complete fitting of a new gear.

ADJUSTMENT OF AMPLIFIER SECTION

When adjusting, set the switches and knobs in the following positions.

- Mode selector: STEREO  
Bass, treble controls: Center  
Band selector: FM  
Recording level control knob: MAX  
Tape selector: NORMAL  
Balance control: Center
- ALC switch: OFF  
Dolby NR switch: OFF  
Volume control: MIN  
Mixing MIC volume control: MIN  
Selector switch: TAPE  
Loudness control: OFF

| Step | Adjustment             | Tape used               | Measuring point       | Input terminal | Frequency     | Input level  | Switch      | Adjusting point            | Procedure and target value                                                                                   |
|------|------------------------|-------------------------|-----------------------|----------------|---------------|--------------|-------------|----------------------------|--------------------------------------------------------------------------------------------------------------|
| 1    | Azimuth adjustment     | 10kHz -10dB             | Ext. speaker terminal |                |               |              |             | Azimuth adj. screw of head | Adjust to obtain max. p/b output.                                                                            |
| 2    | p/b gain adjustment    | MTT-150 (DOLBY tape)    | *Dolby output         |                |               |              |             | SVR801<br>SVR901           | Adjust to obtain Dolby output of 580mV.                                                                      |
| 3    | p/b meter adjustment   | 1kHz 0dB (VTT663, etc.) | Meter                 |                |               |              |             | SVR701                     | Turn volume control until meter of R channel becomes 0 VU, and adjust until L channel meter reads 0 VU.      |
| 4    | Bias coarse adjustment | Blank tape (T308S)      | Dolby output          | LINE IN        | 1kHz          | -46dB (5mV)  |             | REC level control          | Change to LINE IN, set in record mode, and adjust to obtain Dolby output of 30mV.                            |
|      |                        |                         |                       |                | 1kHz<br>10kHz | —            |             | SVR803<br>SVR903           | Taking record signal of 1kHz as 0dB, record 10kHz, and adjust so that p/b signal of 10kHz may be 0dB±1dB.    |
| 5    | Record gain adjustment | Blank tape (T308S)      | Dolby output          | LINE IN        | 1kHz          | -26dB (50mV) |             | REC level control          | In record mode, adjust Dolby output to 0.58V.                                                                |
|      |                        |                         |                       |                |               |              |             | SVR802<br>SVR902           | Record signal, and adjust so that p/b output level becomes 0.58V.                                            |
| 6    | Bias adjustment        | Blank tape (T308S)      | Dolby output          | LINE IN        | 1kHz          | -46dB (5mV)  | DOLBY SW ON | REC level control          | In record mode, adjust Dolby output to 30mV.                                                                 |
|      |                        |                         |                       |                | 1kHz<br>10kHz | —            | DOLBY SW ON | SVR803<br>SVR903           | Taking record signal of 1kHz as 0dB, record 10kHz, and adjust so that p/b signal of 10kHz becomes 0dB±1.5dB. |
| 7    | ALC adjustment         | —                       | Dolby output          | LINE IN        |               | -6dB (500mV) |             | SVR702                     | In record mode, adjust so that Dolby output may be the same in both L and R channels.                        |

\* Dolby output refers to the output between pin 7 side (H) of Dolby IC and earth side (E) of R/P switch.

PARTS LOCATION

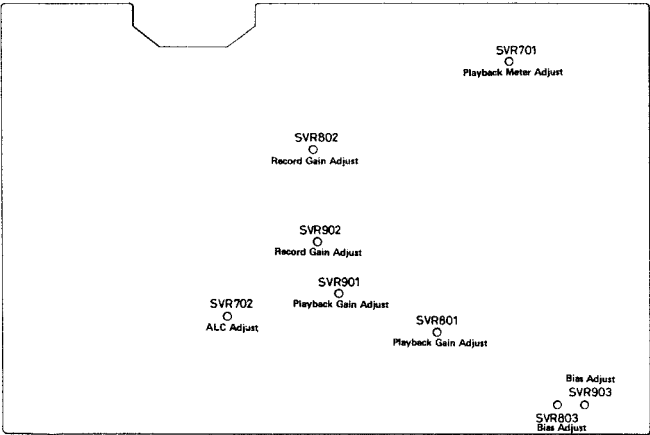


Fig. 12

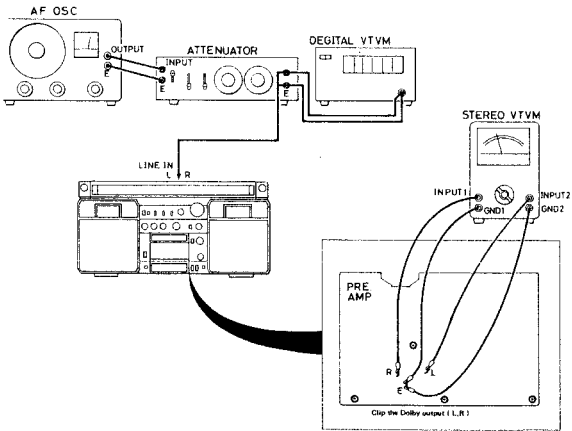


Fig. 13

## TUNER ADJUSTMENT

### FM ALIGNMENT

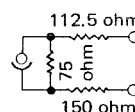
DC Voltage is 15V, and Speaker impedance 2 ohms, Output power 50mW.

| FM ALIGNMENT |                     |                                                 |                                                                       |                                 |                                                                  |             |                   |
|--------------|---------------------|-------------------------------------------------|-----------------------------------------------------------------------|---------------------------------|------------------------------------------------------------------|-------------|-------------------|
| Step         | Adjusting Circuit   | Connections                                     |                                                                       | SG frequency                    | Position of tuning dial                                          | Adjustment  | VTVM Oscilloscope |
|              |                     | Input                                           | Output                                                                |                                 |                                                                  |             |                   |
| 1            | I. F.               | Connect sweep generator to FM TP1 (H) & TP2 (E) | Connect oscilloscope to test point TP4 (IC 5 pin) (H) shield case (E) | 10.7 MHz (none modulation)      | Near max. capacity of VC. at position with no unrequired signal. | T301        |                   |
| 2            | Ratio Det.          |                                                 | Connect oscilloscope to test point 5 (R311) (H) shield case (E)       |                                 |                                                                  | T304        |                   |
| 3            | OSC                 | Connect FM SG. to TP1 (H) & TP2 (E)             | Connect VTVM to speaker terminal.                                     | 87 MHz (400 Hz 30% modulation)  | Low end of dial scale                                            | L108        | Max.              |
| 4            |                     |                                                 |                                                                       | 109MHz (400 Hz 30% modulation)  | High end of dial scale                                           | CT3         |                   |
| 5            | AERIAL              | Connect FM SG. to TP1 (H) & TP2 (E)             | Connect VTVM to speaker terminal.                                     | 90 MHz (400 Hz 30% modulation)  | 90 MHz on dial scale                                             | L103 ~ L106 | Max.              |
| 6            |                     |                                                 |                                                                       | 106 MHz (400 Hz 30% modulation) | 106 MHz on dial scale                                            | CT1, CT2    |                   |
| 7            | Repeat adjustments. |                                                 |                                                                       |                                 |                                                                  |             |                   |

#### PREPARE:

1. Variable Capacitors completely closed.
2. Set the dial pointer to very left line of dial scale.
3. Connect sweep generator, FM SG, VTVM and oscilloscope. FM aerial input impedance is 300 ohm.
4. Use a screwdriver with plastic grip for all adjustments.
5. AFC switch OFF.

\* Because an AFC is incorporated, FM tracking and frequency coverage adjustments have to be made. Use a small input (about 10dB) for this purpose.



### MW ALIGNMENT

| TUNING ALIGNMENT |                   |                                      |                                     |                                  |                                                             |            |                   |
|------------------|-------------------|--------------------------------------|-------------------------------------|----------------------------------|-------------------------------------------------------------|------------|-------------------|
| Step             | Adjusting Circuit | Connections                          |                                     | SG frequency                     | Position of tuning dial                                     | Adjustment | VTVM Oscilloscope |
|                  |                   | Input                                | Output                              |                                  |                                                             |            |                   |
| 1                | I. F.             | Connect sweep generator to TEST LOOP | Connect oscilloscope to to EXT. SP. | 455 KHz                          | Low end of dial scale. at position of no unrequired signal. | T302, T303 | Max.              |
| 2                | OSC               | Connect A. M. SG to TEST LOOP        | Connect VTVM to EXT. SP terminals   | 505 KHz (400 Hz 30% modulation)  | Low end of dial scale                                       | L115       | Max.              |
| 3                |                   |                                      |                                     | 1650 KHz (400 Hz 30% modulation) | High end of dial scale                                      | CT9        |                   |
| 4                | AERIAL            | Connect A. M. SG to TEST LOOP        | Connect VTVM to EXT. SP terminals   | 600 KHz (400 Hz 30% modulation)  | 600 KHz on dial scale                                       | L112b      | Max.              |
| 5                |                   |                                      |                                     | 1400 KHz (400 Hz 30% modulation) | 1400 KHz on dial scale                                      | CT8        |                   |
| 6                | Repeat adjustment |                                      |                                     |                                  |                                                             |            |                   |

- PREPARE:
1. Variable capacitor completely closed.
  2. Set the dial pointer to very left line on dial scale.
  3. Use a screwdriver with plastic grip for all adjustments.
  4. Selector switch to "MW".
  5. Use a dummy of back lid and Rod Antenna, adjust tracking point.

### SW 1 ALIGNMENT

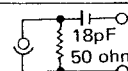
| Step | Adjusting Circuit   | Connections                 |                                     | SG frequency                    | Position of tuning dial | Adjustment | VTVM Oscilloscope |
|------|---------------------|-----------------------------|-------------------------------------|---------------------------------|-------------------------|------------|-------------------|
|      |                     | Input                       | Output                              |                                 |                         |            |                   |
| 1    | OSC                 | Connect AM SG to Test Loop. | Connect VTVM to EXT. SP. terminals. | 2.2 MHz (400 Hz 30% modulation) | Low end of dial scale.  | L114       | MAX.              |
| 2    |                     |                             |                                     | 7.3 MHz (400 Hz 30% modulation) | High end of dial scale. | CT7        |                   |
| 3    | AERIAL              | Connect AM SG to Test Loop. | Connect VTVM to EXT. SP. terminals  | 2.5 MHz (400 Hz 30% modulation) | 2.5 MHz on dial scale   | L112a      | MAX.              |
| 4    |                     |                             |                                     | 6.5 MHz (400 Hz 30% modulation) | 6.5 MHz on dial scale   | CT6        |                   |
| 5    | Repeat adjustments. |                             |                                     |                                 |                         |            |                   |

- PREPARE:
1. Variable capacitor completely closed.
  2. Set the dial pointer to very left line dial scale.
  3. Connect sweep generator, AM SG, VTVM and oscilloscope.
  4. Use screwdriver with plastic glip for all adjustments.
  5. Selector switch to "SW 1".
  6. Set the Fine Tuning to mechanical center.
  7. Use a dummy of back lid and Rod Antenna, and tracking point.

### SW 2 ALIGNMENT

| Step | Adjusting Circuit   | Connections                                          |                                     | SG frequency                      | Position of tuning dial | Adjustment | VTVM Oscilloscope |
|------|---------------------|------------------------------------------------------|-------------------------------------|-----------------------------------|-------------------------|------------|-------------------|
|      |                     | Input                                                | Output                              |                                   |                         |            |                   |
| 1    | OSC                 | Connect AM SG to aerial terminal, through IRE dummy. | Connect VTVM to EXT. SP. terminals. | 6.8 MHz (400 Hz 30% modulation)   | Low end of dial scale.  | L113       | MAX.              |
| 2    |                     |                                                      |                                     | 22.7 MHz (400 Hz 30% modulation)  | High end of dial scale. | CT5        |                   |
| 3    | AERIAL              | Connect AM SG. to aerial terminal through IRE dummy. | Connect VTVM to EXT. SP. Terminals. | 8.0 MHz (400 Hz 30% modulation)   | 7.5 MHz on dial scale   | L110       | MAX.              |
| 4    |                     |                                                      |                                     | 21.0 MHz (400 Hz) 30% modulation) | 21.0 MHz on dial scale. | CT4        |                   |
| 5    | Repeat adjustments. |                                                      |                                     |                                   |                         |            |                   |

- PREPARE:
1. Variable capacitor completely closed.
  2. Set the dial pointer to very left line dial scale.
  3. Connect signal generator to dummy aerial.
  4. Use screwdriver with plastic glip for all adjustments.
  5. Selector switch to "SW 2".
  6. Set the Fine Tuning to mechanical center.



## Cautions for FM adjustment

- \* Input points of FM
  - IF hot side (H): TP1
  - IF earth side (E): TP2
- Output points
  - IF hot side (H): V-curve ... base of R324
  - S-curve ... base of R330
  - IF earth side (E): earth near T302 case
- \* FM antenna dummy is of 300-ohm balanced type.
- \* Coverage adjustment should be based on the graduations of the dial scale.

## Adjustment of tuning meter

1. Tune in to 98 MHz in FM band, and set the SG input to 66 dB, 22.5 kHz dev.
2. Turn SVR301 until the meter reads 9.5.

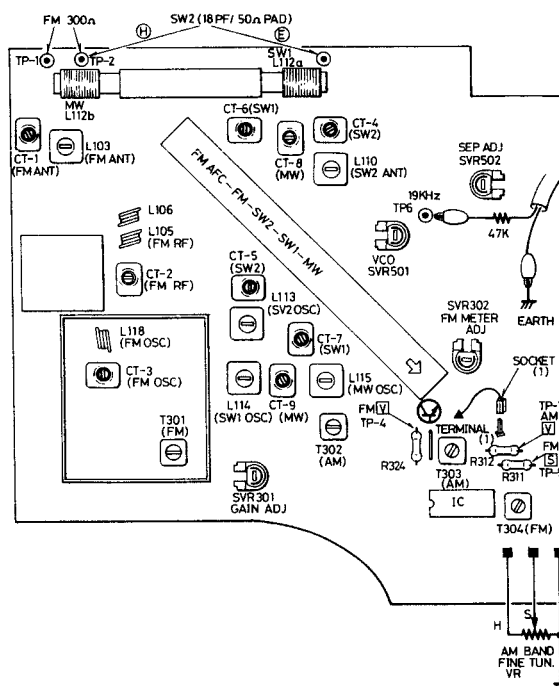
## Adjustment of FM multiplex

This adjustment should be done after adjustment of FM tuner.

Carrier signal modulation frequency:

1000 Hz  $\pm$  22.5 kHz dev.

Pilot signal (19 kHz):  $\pm$ 7.5 kHz dev.



| Adjustment  | Tuning frequency | Connection method of instruments                     |                                                                                                                                | Freq. of sig. gen. | Adj. point | Target value                                       | Method of adjustment                                                                                                                                                                                                                                                                        |
|-------------|------------------|------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------|--------------------|------------|----------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|             |                  | Input side                                           | Output side                                                                                                                    |                    |            |                                                    |                                                                                                                                                                                                                                                                                             |
| VCO (19 Hz) | 98 MHz           | Connect hot side of FM-SG to TP1, earth side to TP2. | Connect hot side of freq. counter to TP3, earth side to shield case.                                                           | 83 MHz             | SVR502     | 19 kHz $\pm$ 100kHz                                | (1) In FM stereo mode, set output of FM-SG to 66 dB, and tune in.<br>(2) * Adjust with no modulation                                                                                                                                                                                        |
| Separation  | 98 MHz           |                                                      | Connect DVTVM and oscilloscope to output speaker terminals, adjust volume control to standard output in both L and R channels. | 98 MHz             | SVR501     | Balance in L and R channels, 1,000 Hz: above 30 dB | (1) In FM stereo mode, set FM-SG to 66 dB, and tune in.<br>(2) With tone controls at MIN and balance control in the center, adjust volume control to standard output.<br>(3) By changing over the channels* on stereo modulator, adjust the leakage current of opposite channel to minimum. |

- \* "No modulation" means to set MAIN & SUB signal and PILOT signal of stereo modulator to "OFF" position.
- \* When changing over the channels, exchange the connections of the external speaker terminals at the same time.
- \* Set band selector to FM, and mode selector to STEREO.

## CIRCUIT DESCRIPTION

The block diagram of the AMSS section is shown in Fig. 15.

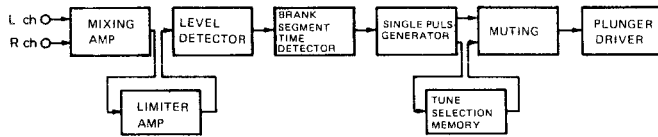


Fig. 15. AMSS block diagram.

### (1) Description of block diagram (summary)

- The mixing amplifier mixes the L ch and R ch outputs from the playback equalizer.
- The limiter amplifier amplifies the signal linearly until arrested by the limiter.
- The level detection part detects presence or absence of signal by means of switching transistor.
- The blank segment detection part detects the duration of blank segment by means of integrating circuit and comparator.
- The single shot pulse generation part delivers and output for a specified time by means of monostable multi-vibrator.
- The tune selection memory and muting part determine which single shot pulse should be transmitted to the plunger driving part.
- The plunger driving part releases FF or REW key by driving the plunger with single shot pulse, and sets in playback mode.

### (2) Description of AMSS parts

#### (a) Limiter amplifier part

In M-X920F, IC LA3210 for equalizer amplifier with ALC is used. The equivalent circuit of LA3210 is shown in Fig. 2.

C607, C608, C612 are low-cut capacitors.

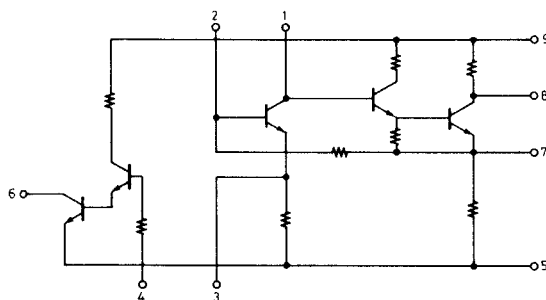


Fig. 16. Equivalent circuit (LA3210).

#### (b) Level detection circuit

Level is detected by switching of transistor of Q603.

#### (c) Blank segment detection part

In MR-X920, non-inverting input of comparator is  $V_{ref}$ , and inverting input is  $V_i$ .

When  $V_{ref} > V_i$ ,  $V_o$  = high;

when  $V_{ref} < V_i$ ,  $V_o$  = low,

thus, Schmitt circuit is constituted with  $R_4$

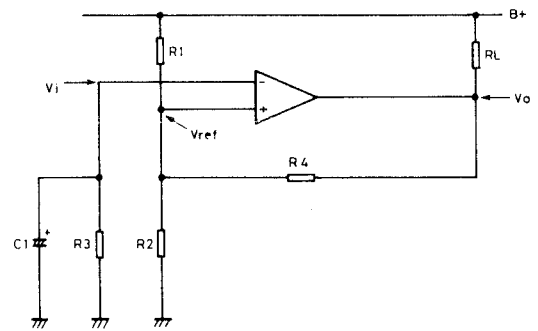


Fig. 17. Blank segment detection circuit.

$V_{refH}$  and  $V_{refL}$  are:

$$V_{refH} = V_{oc} \frac{R_2(R_1 + R_4 + R)}{R_1(R_4 + R) + R_2(R_1 + R_4 + R)}$$

$$V_{refL} = V_{oc} \frac{R_2 R_4}{R_2 R_4 + R_1(R_2 + R_4)}$$

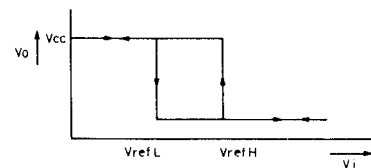


Fig. 18. Characteristic curve.

#### (d) Single shot pulse generation part

The single shot pulse generation part is composed of monostable multivibrator as shown in Fig. 5. Time to when  $V_o$  is high is determined in the equation, below.

$$t = CR \cdot \ln \frac{V_{cc}}{V_{cc} - V_{ref}} \text{ (Sec)}$$

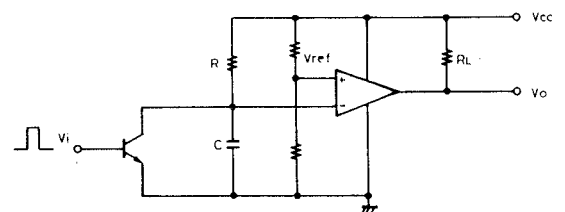


Fig. 19. Single shot pulse generation circuit.

#### (e) Muting part

The output from single shot pulse generation part is muted by the muting transistor by receiving signal from tune selection memory part, and blocks transmission to the plunger driving part.

#### (f) Plunger driving part

Darlington transistor is used so as to enable driving with small signal current. Diodes for surge absorption are used at both ends of the plunger.

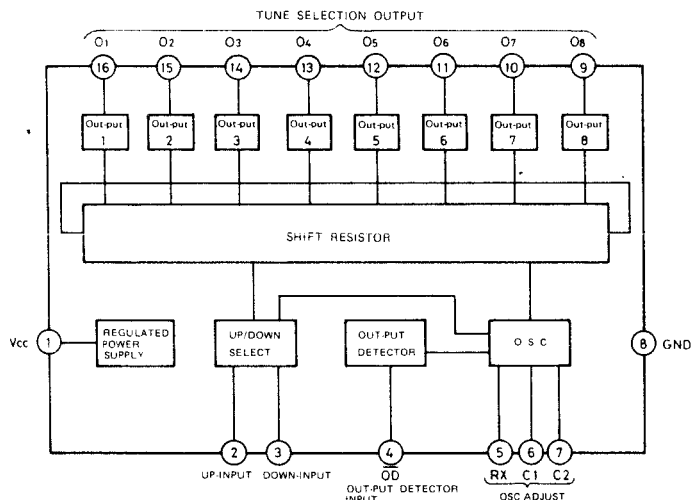


Fig. 20. Functional block diagram (M54832P).

(g) Tune selection memory part

The functional block diagram of M54832P is shown in Fig. 20.

With CR oscillator built in, this is an IC for channels capable of selecting 8 channels directly or selecting a desired channel by up/down operation. When power is supplied, a fixed channel ( $Q_1$ ) is selected. When UP or DOWN input is set to H, the channels are sequentially shifted in either UP or DOWN direction depending on the input, by one channel each. If, however, both UP and DOWN inputs are set to H, up/down operation is not effected, and the channel remains unchanged. The up/down feed speed can be adjusted by means of the external resistor ( $R_x$ ) and capacitors ( $C_1 + C_2$ ) of CR oscillator. The feed speed is the period of  $1/64$  of the CR oscillating circuit. In the case of direct selection, a desired channel can be selected instantly by short-circuiting the output terminal of the tune to be selected and the output detection circuit. At this time, the tune selection speed can be set by means of the resistor ( $R_x$ ) and capacitor ( $C_2$ ) in the oscillating circuit.

The timing chart of the tune selection memory part is shown in Fig. 21.

(3) Circuit behavior

The M-X 920 relies on the UP selection system by means of the tune selector switch. Besides, as blank detection signal, a single shot pulse is fed in DOWN input. When power is supplied, pin 16 of IC becomes L, and the LED to indicate the first tune lights up.

D613 is cut off at this time, and muting signal is not transmitted to the muting part. Therefore, at this time, the output from the single shot pulse generation part is transmitted to the plunger driving part directly without muting. When the tune selector switch is pressed once, pin 16 of IC becomes H, while pin 15 is set to L. That is, lighting of LED changes from "1" to "2." At this time, D613 is in ON state, and the muting signal is transmitted to the muting part, and the output from the single short pulse generation part is muted so as not to be transmitted to the plunger driving part. When the tune selector switch is pressed again, pin 15 changes from L to H, and pin 14 from H to L. Therefore, muting is released only while LED "1" is lighting (when pin 16 is L), and is effective when other LEDs, "2" to "7," are lighting (pin 16 is H). If the tune selector switch is pressed once while LED "7" is lighting, pin 9 of IC changes from H to L, and pin 2 from H to L by means of C629. As the potential, however, climbs by the time constant due to R656 and R629, pin 9 changes from L to H whereas pin 16 from H to L, to the contrary. Since this level switching is completed in an instant when the tune selector switch is pressed once, it appears that LED lighting has been changed from 7 to 1. Even when the tune selector switch is kept depressed, since the oscillator is built in, the channels shift by auto-scanning as if the switch were pushed intermittently. As blank detection signal, single shot pulse is fed in pin 3 of DOWN input. Therefore, suppose LED "2" is lighting (when pin 15 is L), when a single shot pulse is fed, the diode of D614 becomes ON because pin 16 is L, and the current is attracted by pin 16. (Threshold value of pin 2 and pin 3 is 2 V.)

So, if single shot pulses enter the DOWN input as blank segment detection repeatedly while LED "1" is lighting, this lighting is not changed. The up/down feed speed  $T_1$  is determined by R651, C622, C628 in the following formula.

$$\begin{aligned} T_1 &= R \times (C_1 + C_2) \times 0.445 \\ &= 47K \text{ ohm} \times 0.47\mu F \times 0.445 \\ &= 9.83 \text{ msec.} \end{aligned}$$

Since the scanning speed  $T_2$  is 64 times the speed  $T_1$ , it follows that

$$T_2 = 46T_1 = 629 \text{ msec.}$$

Although 10 V power supply is used as the power source, it is stabilized by 6 V zener diode because M54832P works off 6 V power supply.

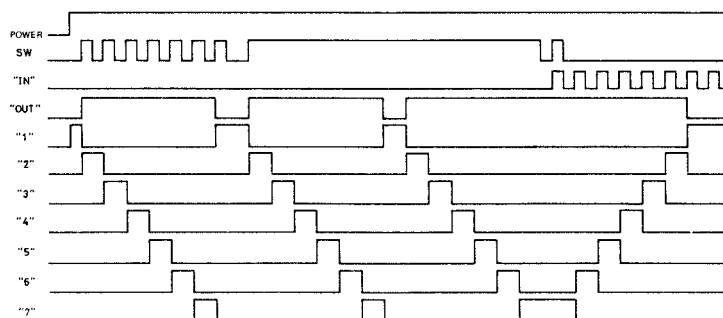
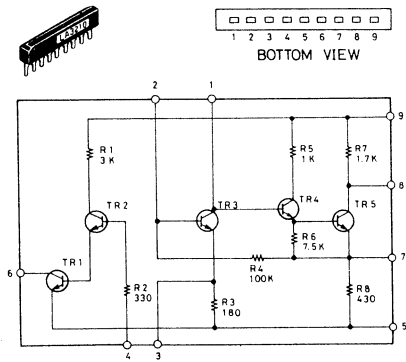
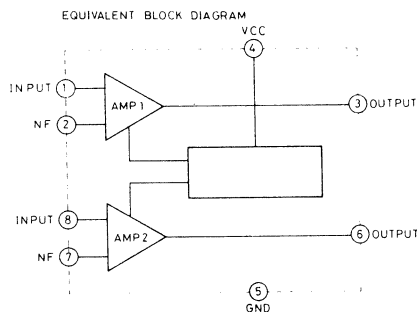


Fig. 21. Time chart.

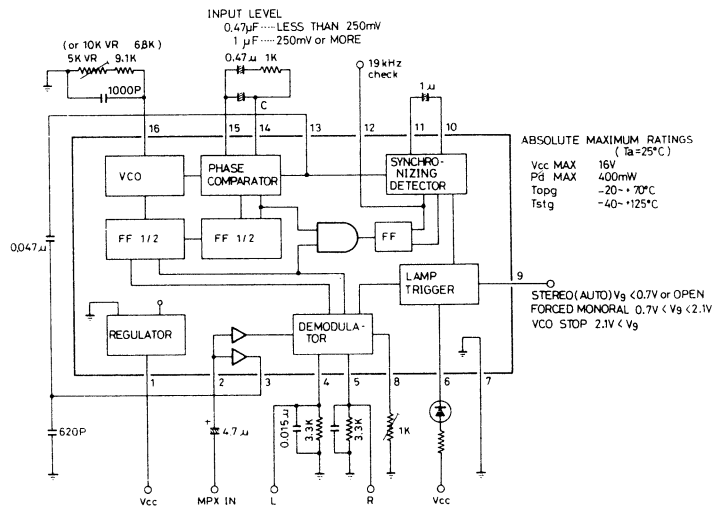
LA3210



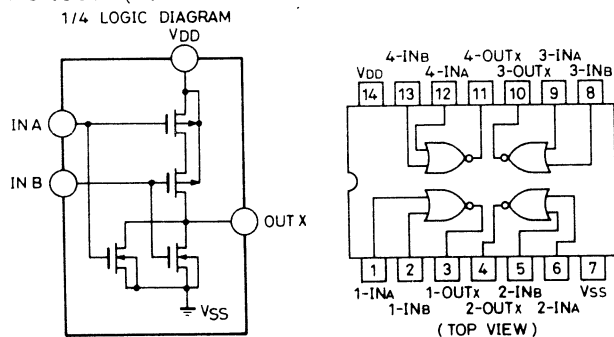
LA3161 (2 CHANNEL PRIAMPRIFIER)



LA3361 (FM DEMODULATOR)



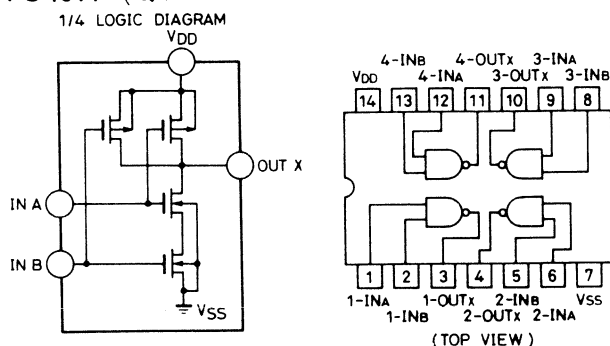
TC4001 (QUAD 2-INPUT POSITIVE NOR GATE)



TRUTH VALUE TABLE

| INPUT |   | OUTPUT |
|-------|---|--------|
| A     | B | X      |
| L     | L | H      |
| L     | H | L      |
| H     | L | L      |
| H     | H | L      |

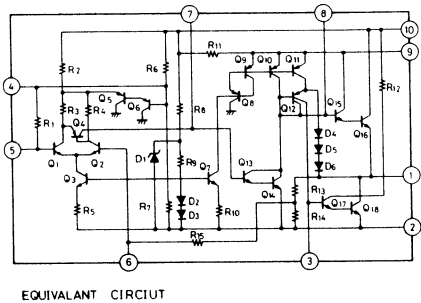
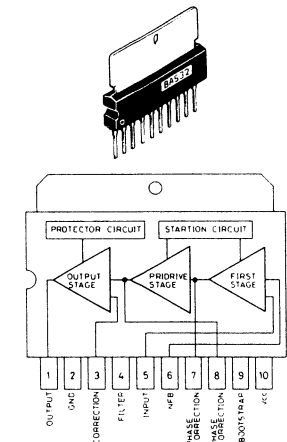
TC4011 (QUAD 2-INPUT POSITIVE NAND GATE)



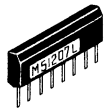
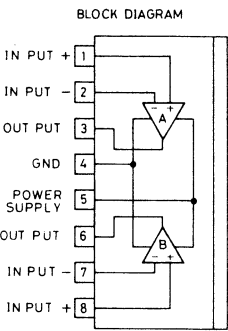
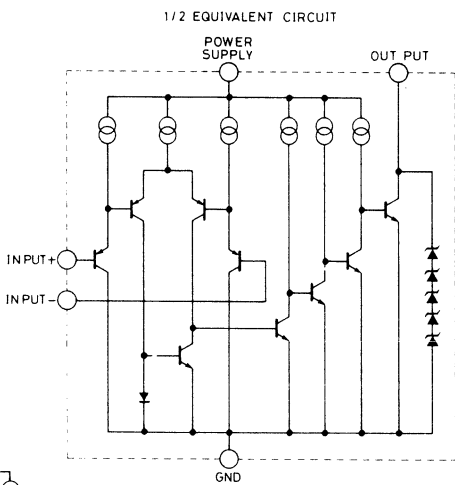
TRUTH VALUE TABLE

| INPUT |   | OUTPUT |
|-------|---|--------|
| A     | B | X      |
| L     | L | H      |
| L     | H | H      |
| H     | L | H      |
| H     | H | L      |

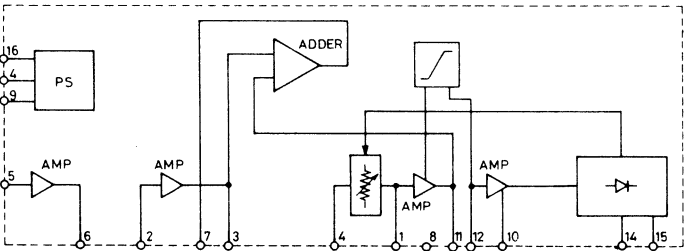
BA-532 (13,2-5,8W  
POWER AMPLIFIER)



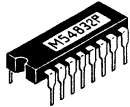
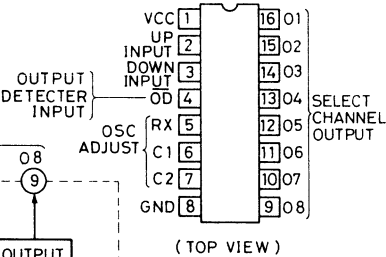
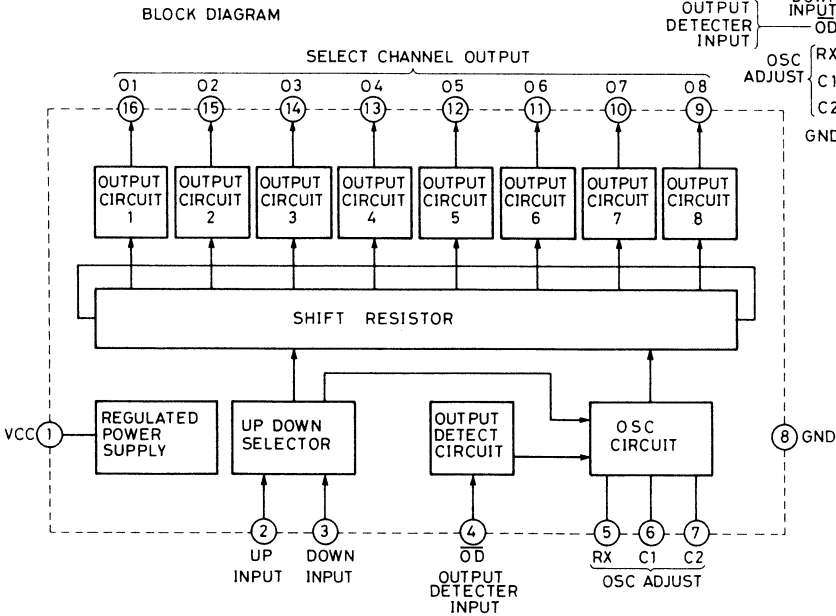
M51207L (DUAL COMPAPATOR)



NE646B-N

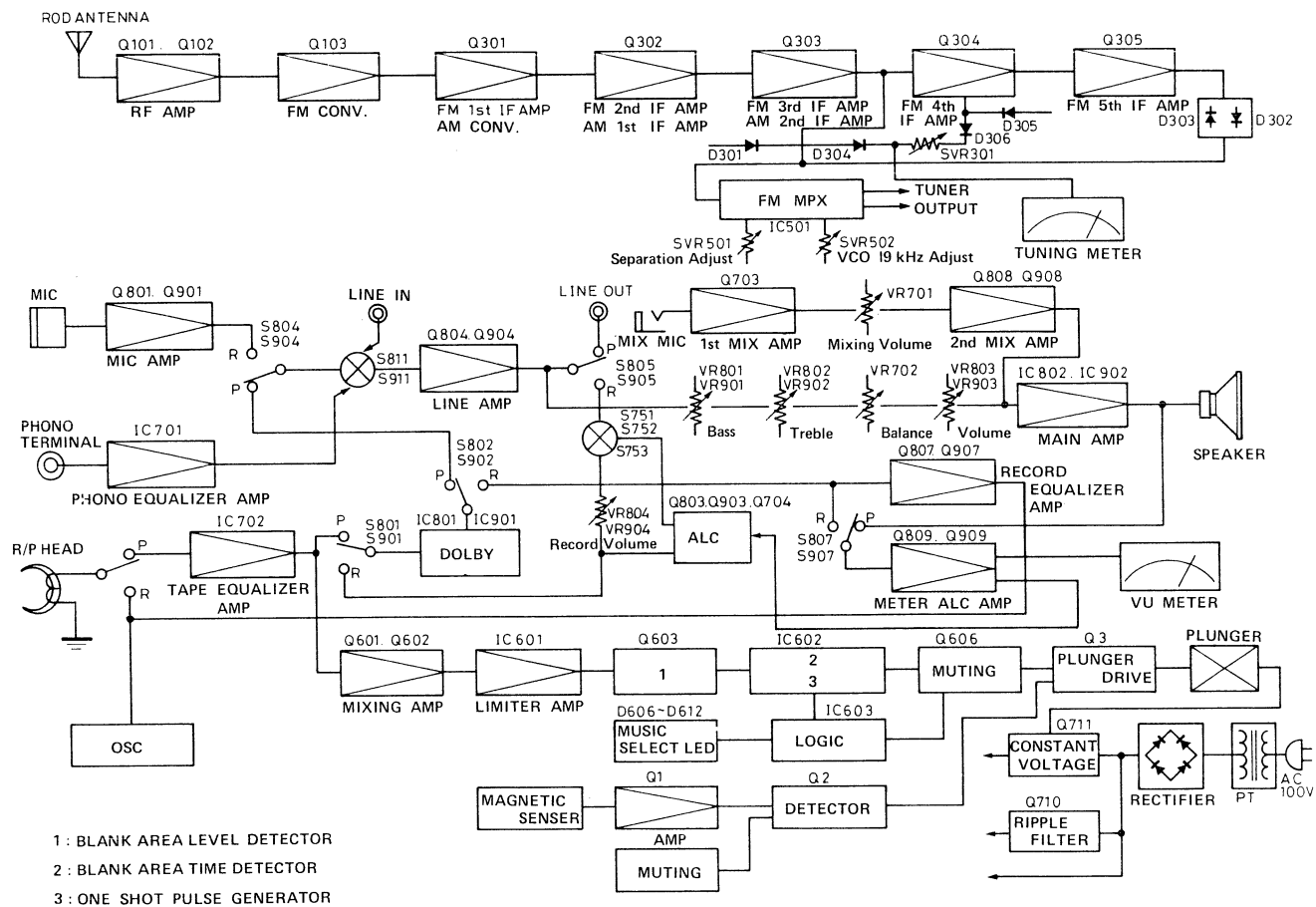


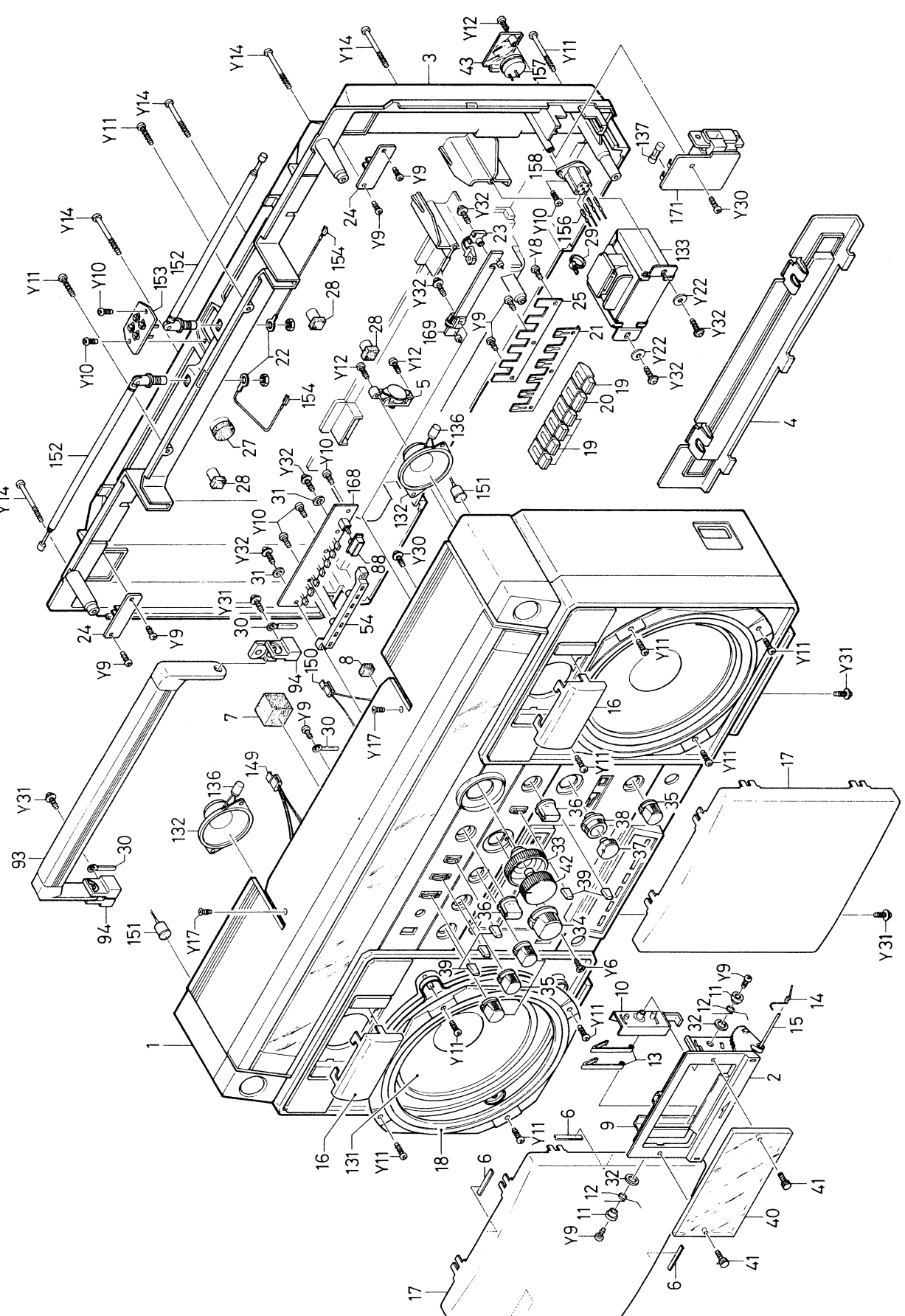
M54832P (8-CHANNEL SELECTOR)





## BLOCK DIAGRAM





# PARTS LIST

| Key No.   | Part No.         | Description                             | Q'ty | Key No.   | Part No.         | Description                    | Q'ty |
|-----------|------------------|-----------------------------------------|------|-----------|------------------|--------------------------------|------|
| PACKING   |                  |                                         |      | CHASSIS   |                  |                                |      |
|           | 141-6-133T-15303 | Individual Carton                       | 1    | 59        | 141-2-472T-10200 | Lug                            | 1    |
|           | 141-6-144T-63500 | Form Plastic Case, Right                | 1    | 60        | 141-2-146T-24403 | Dial Scale                     | 1    |
|           | 141-6-144T-63600 | Form Plastic Case, Left                 | 1    | 61        | 141-2-311T-34901 | Chassis                        | 1    |
|           | 141-2-135T-62100 | Cover, RCA Jack                         | 3    | 62        | 141-0-245T-09501 | Back Plate Ass'y               | 1    |
|           | 141-6-479T-08300 | Label, Dolby                            | 1    | 63        | 141-2-365T-52500 | Bracket, Lever Switch          | 1    |
|           | 141-6-231T-90600 | Inner Polycover, Set                    | 1    | 64        | 141-2-367T-34200 | Bracket, Mic Socket            | 1    |
|           | 141-6-231T-20350 | Inner Polycover, Inst. M                | 1    | 65        | 141-2-462T-61800 | Boss                           | 1    |
|           | 141-6-141T-14800 | Carton, Microphone                      | 1    | 66        | 141-2-742T-51900 | Lever, Rec                     | 1    |
|           | 141-6-231T-10200 | Inner Polycover, Mic                    | 2    | 67        | 141-2-747T-19800 | Bracket, Rec Lever             | 1    |
| ACCESSORY |                  |                                         |      | 68        | 141-2-855T-57800 | Spring Coil, Rec Lever         | 1    |
|           | 141-6-410T-49800 | Instruction Manual                      | 1    | 69        | 141-2-853T-62201 | Spring Plate, Rec              | 1    |
|           | 4-241T-10891     | Cassette Tape C12                       | 1    | 70        | 141-2-446T-06500 | Plastic Cushion, Meter         | 2    |
|           | 4-153T-10700     | Microphone                              | 2    | 71        | 141-2-329T-07000 | Reflector, PL                  | 1    |
|           | 4-243T-13001     | } or Power Cord                         | 1    | 72        | 141-2-747T-19900 | Bracket, AMSS Lever            | 1    |
|           | 4-243T-11500     |                                         |      | 73        | 141-2-742T-52000 | Lever, AMSS                    | 1    |
|           | 4-243T-76401     |                                         |      | 74        | 141-2-855T-58000 | Spring Coil, AMSS              | 1    |
|           | 4-243T-79100     |                                         |      | 75        | 141-0-566T-10500 | Tuning Shaft Ass'y             | 1    |
|           | 4-236T-17000     | Plug                                    | 1    | 76        | 141-0-511T-19500 | Pointer Ass'y                  | 1    |
|           | 4-236T-11201     | Plug Ass'y                              | 1    | 77        | 141-2-538T-08900 | Drum                           | 1    |
|           | 4-235T-90100     | Socket                                  | 1    | 78        | 141-2-581T-11001 | Gear, VC                       | 1    |
|           | 141-0-385T-02900 | Bracket Ass'y, Microphone               | 2    | 79        | 141-2-581T-11100 | Gear, VC                       | 1    |
|           | 141-6-410T-55600 | Instruction Manual, Arabic              | 1    | 80        | 141-2-753T-90500 | Shaft, Drum                    | 1    |
| CABINET   |                  |                                         |      | 81        | 141-2-855T-26100 | Spring Coil, Gear              | 1    |
| 1         | 141-0-111T-43603 | Cabinet Ass'y                           | 1    | 82        | 141-2-851T-06300 | Spring Coil, Rope              | 1    |
| 2         | 141-0-124T-28300 | Top Lid Ass'y                           | 1    | 83        | 141-2-340T-05003 | Rope                           | 1    |
| 3         | 141-0-126T-33403 | Back Lid Ass'y                          | 1    | 84        | 141-2-567T-02000 | Pulley Shaft                   | 3    |
| 4         | 141-0-128T-16200 | Battery Lid Ass'y                       | 1    | 85        | 141-2-567T-02100 | Pulley Shaft                   | 1    |
| 5         | 141-0-581T-10900 | Gear Ass'y                              | 1    | 86        | 141-2-661T-24600 | Pulley                         | 4    |
| 6         | 141-2-246T-29101 | Sheet 3x30x0.5 Fiber                    | 8    | 87        | 141-2-161T-78230 | Push Button, Power             | 1    |
| 7         | 141-2-447T-18200 | Cushion 20x20x20                        | 1    | 88        | 141-2-161T-78330 | Push Button, AMSS Switch       | 1    |
| 8         | 141-2-447T-62500 | Cushion 11x11x6t                        | 1    | 89        | 141-2-161T-78800 | Push Button, PL Switch         | 1    |
| 9         | 141-2-210T-10631 | Bracket, Cassette Holder                | 1    | 90        | 141-2-161T-78900 | Push Button, Eject Switch      | 2    |
| 10        | 141-2-210T-10731 | Bracket, Cassette Holder                | 1    | 91        | 141-2-161T-79000 | Push Button, Edit Switch       | 1    |
| 11        | 141-2-135T-59230 | Cover, Bracket                          | 2    | 92        | 141-2-855T-57900 | Spring Coil                    | 1    |
| 12        | 141-2-852T-53101 | Spring Wire                             | 2    | 93        | 141-0-171T-16800 | Handle Ass'y                   | 1    |
| 13        | 141-2-853T-61100 | Spring Plate                            | 2    | 94        | 141-2-271T-17000 | Bracket, Handle                | 2    |
| 14        | 141-2-852T-56800 | Spring Wire                             | 1    | 95        | 141-2-464T-24100 | Fixer                          | 2    |
| 15        | 141-2-753T-91200 | Shaft                                   | 1    | 96        | 141-2-453T-01200 | Washer 3x8x1t                  | 3    |
| 16        | 141-2-153T-59700 | Escutcheon, Tweeter                     | 2    | 97        | 141-2-447T-15101 | Cushion 15x15x15t              | 2    |
| 17        | 141-2-153T-59800 | Escutcheon, Woofer                      | 2    | 98        | 141-2-310T-45700 | Bracket, Fine Tuning           | 1    |
| 18        | 141-2-153T-60000 | Escutcheon                              | 2    | 99        | 141-2-253T-23000 | Joint, Fine Tuning             | 1    |
| 19        | 141-2-161T-78000 | Push Button                             | 5    | 100       | 141-2-453T-05500 | Washer 10.2x14x1t              | 1    |
| 20        | 141-2-161T-78100 | Push Button                             | 1    | 101       | 141-0-747T-20500 | Bracket Lever Ass'y            | 1    |
| 21        | 141-2-853T-67900 | Spring Plate                            | 1    | 102       | 141-2-731T-83600 | Slide, Eject Button            | 1    |
| 22        | 123-2-472R-11100 | Lug, Rod ANT                            | 2    | 103       | 141-2-855T-62700 | Spring Coil                    | 1    |
| 23        | 141-2-352T-45100 | Spacer, LED                             | 2    | 104       | 141-2-742T-54500 | Lever                          | 1    |
| 24        | 141-2-385T-04400 | Bracket, Mic                            | 2    | 105       | 141-2-731T-83500 | Slide, Eject                   | 1    |
| 25        | 141-2-352T-47300 | Spacer                                  | 1    | 106       | 141-2-742T-54600 | Lever, Eject                   | 1    |
| 26        | 141-2-447T-50000 | Cushion 6x10x14T                        | 2    | 107       | 141-2-462T-64200 | Boss                           | 1    |
| 27        | 141-2-447T-62701 | Cushion 19x6t                           | 1    | 108       | 141-2-855T-62800 | Spring Coil                    | 1    |
| 28        | 141-2-447T-62500 | Cushion 11x11x6t                        | 2    | 109       | 141-2-742T-54800 | Lever                          | 1    |
| 29        | 141-2-464T-20600 | Fixer                                   | 15   | 110       | 141-2-747T-20600 | Bracket, Lever                 | 1    |
| 30        | 141-2-472T-01001 | Lug                                     | 4    | 111       | 141-2-462T-64100 | Boss                           | 1    |
| 31        | 141-2-453T-00800 | Washer 3x8x0.5                          | 2    | 112       | 141-2-464T-36600 | Fixer                          | 1    |
| 32        | 141-2-453T-31001 | Washer 8.2x12x0.5                       | 2    | 113       | 141-2-742T-54700 | Lever                          | 1    |
| 33        | 141-2-163T-69801 | Rotary Knob, Tuning                     | 1    | 114       | 141-2-852T-65000 | Spring Wire                    | 1    |
| 34        | 141-2-163T-69930 | Rotary Knob, Main VR                    | 1    | 115       | 141-2-753T-93900 | Shaft                          | 1    |
| 35        | 141-2-163T-70030 | Rotary Knob, Balance, Bass, Treble, Mic | 4    | 116       | 141-2-742T-54400 | Lever                          | 1    |
| 36        | 141-2-163T-70130 | Rotary Knob, Function, Band             | 2    | 117       | 141-2-747T-20401 | Bracket, Lever                 | 1    |
| 37        | 141-2-163T-70230 | Rotary Knob, Input Top                  | 1    | 118       | 141-2-852T-64900 | Spring Wire                    | 1    |
| 38        | 141-2-163T-70330 | Rotary Knob, Input Bottom               | 1    | 119       | 141-2-853T-68400 | Spring Plate                   | 1    |
| 39        | 141-0-162T-16100 | Lever Knob Ass'y                        | 5    | 120       | 141-0-811T-08200 | Counter Ass'y                  | 1    |
| 40        | 141-2-131T-25800 | Clear Window                            | 1    | 121       | 141-2-564T-23300 | Square Belt                    | 1    |
| 41        | 141-2-421T-29800 | Special Screw                           | 2    | 122       | 141-2-812T-09500 | Bracket, Counter               | 1    |
| 42        | 141-2-163T-65730 | Rotary Knob, Fine Tuning                | 1    | 123       | 4-235T-94200     | Socket, 7P                     | 1    |
| 43        | 141-2-132T-03800 | Sign Window, Voltage Select             | 1    | 124       | 4-235T-94300     | Socket, 2P                     | 1    |
| CHASSIS   |                  |                                         |      | HARD WARE |                  |                                |      |
| 51        | 141-2-363T-09800 | Bracket, VC                             | 1    | Y1        |                  | Pan Head Screw 2.6x4mm         |      |
| 52        | 141-2-368T-19800 | Heat Sink                               | 1    | Y2        |                  | Pan Head Screw 2.6x8mm         |      |
| 53        | 141-2-367T-34100 | Bracket, Socket                         | 1    | Y3        |                  | Pan Head Screw 3x5mm           |      |
| 54        | 141-2-352T-45000 | Spacer, AMSS LED                        | 1    | Y4        |                  | Pan Head Screw 3x8mm           |      |
| 55        | 123-2-382R-11100 | Terminal                                | 1    | Y5        |                  | Pan Head Screw 3x40mm          |      |
| 56        | 123-2-382R-10900 | Terminal                                | 1    | Y6        |                  | Flat Head Screw 3x8mm          |      |
| 57        | 141-2-421T-28800 | Special Screw                           | 1    | Y7        |                  | Pan Head Tapping Screw 2.6x5mm |      |
|           |                  |                                         |      | Y8        |                  | Pan Head Tapping Screw 2.6x8mm |      |
|           |                  |                                         |      | Y9        |                  | Pan Head Tapping Screw 3x8mm   |      |
|           |                  |                                         |      | Y10       |                  | Pan Head Tapping Screw 3x10mm  |      |
|           |                  |                                         |      | Y11       |                  | Pan Head Tapping Screw 3x14mm  |      |

# PARTS LIST

| Key No.          | Part No.         | Description                                           | Q'ty | Key No.            | Part No.         | Description                                             | Q'ty |
|------------------|------------------|-------------------------------------------------------|------|--------------------|------------------|---------------------------------------------------------|------|
| HARD WARE        |                  |                                                       |      | MAIN AMP PCB ASS'Y |                  |                                                         |      |
| Y12              |                  | Pan Head Tapping Screw<br>3x16mm                      |      | 161                | 141-4-233T-55000 | P.C Board Ass'y, Main Amp                               | 1    |
| Y13              |                  | Pan Head Tapping Screw<br>3x30mm                      |      |                    | 4-258T-26700     | O.S.C Coil, Bias                                        | 1    |
| Y14              |                  | Pan Head Tapping Screw<br>3x40mm                      |      |                    | 4-235T-65300     | Socket, 2P                                              | 1    |
| Y15              |                  | Flat Head Tapping Screw<br>3x6mm                      |      |                    | 4-235T-65371     | Socket, 3P                                              | 4    |
| Y16              |                  | Flat Head Tapping Screw<br>3x10mm                     |      |                    | 4-235T-65372     | Socket, 4P                                              | 3    |
| Y17              |                  | Oval Head Self-Tapping Screw<br>3x12mm                |      |                    | 4-235T-69472     | Socket, 7P                                              | 1    |
| Y18              |                  | Regular Hexagon Bolt<br>2.6x12mm                      |      |                    | 4-235T-76400     | Socket, 1P Wire Post                                    | 6    |
| Y19              |                  | Regular Hexagon Nut 3mm                               |      |                    | 4-236T-10293     | Plug, 2P                                                | 2    |
| Y20              |                  | Regular Hexagon Nut<br>9φx0.75mm                      |      |                    | 4-236T-10200     | Plug, 3P                                                | 2    |
| Y21              |                  | Washer 3x8x0.5mm                                      |      |                    | 4-236T-10293     | Plug, 2P                                                | 1    |
| Y22              |                  | Washer 3x13x1mm                                       |      |                    | 4-236T-10274     | Plug, 7P                                                | 1    |
| Y23              |                  | Washer 4x10x0.8mm                                     |      |                    |                  | IC BA532S2, Power IC                                    | 2    |
| Y24              | 141-2-210T-25700 | External Tooth Lock Washer<br>3mm                     |      | IC1                |                  | IC TC4011BP                                             | 1    |
| Y25              | 141-2-457T-23000 | External "E" Ring 1.2mm                               |      | IC2                |                  | IC TC4001BP                                             | 1    |
| Y26              | 141-2-457T-25100 | External "E" Ring 2.5mm                               |      | Q1,2,5             |                  | Transistor 2SC536 or<br>2SC1740 or 2SC945<br>or 2SC1815 | 3    |
| Y27              |                  | Tapping Screw with Washer<br>2.6x4mm                  |      | Q3                 |                  | Transistor 2SD549                                       | 1    |
| Y28              |                  | Tapping Screw with Washer<br>3x6mm                    |      | Q608,609           |                  | Transistor 2SA608 or 2SA1015                            | 2    |
| Y29              |                  | Tapping Screw with Washer<br>3x8mm                    |      | Q705,707           |                  | Transistor 2SC536                                       | 6    |
| Y30              |                  | Tapping Screw with Washer<br>3x10mm                   |      | 805,905            |                  |                                                         |      |
| Y31              |                  | Tapping Screw with Washer<br>3x12mm                   |      | 708,709            |                  |                                                         |      |
| Y32              |                  | Tapping Screw with Washer<br>3x14mm                   |      | D1,2,4,5           |                  | Diode DS442X or 1S2473                                  | 10   |
| Y33              |                  | Tapping Screw with Washer<br>3x40mm                   |      | 7,8,9              |                  |                                                         |      |
| Y34              |                  | Pan Head Screw with Spring<br>Washer 2.6x3mm          |      | 603,604            |                  |                                                         |      |
| Y35              |                  | Pan Head Screw with Spring<br>Washer 2.6x4mm          |      | 605                |                  |                                                         |      |
| Y36              |                  | Pan Head Screw with Washer<br>& Spring Washer 2.6x4mm |      | D10                |                  | Diode SR1K2 or DS135E                                   | 1    |
| Y37              |                  | Pan Head Screw with Washer<br>& Spring Washer 2.6x6mm |      | D709,711           |                  | Diode DS442X                                            | 5    |
|                  |                  |                                                       |      | 712,734            |                  |                                                         |      |
|                  |                  |                                                       |      | 735                |                  |                                                         |      |
|                  |                  |                                                       |      | V1,2               |                  | Varistor MA26W                                          | 2    |
| ELECTRICAL PARTS |                  |                                                       |      | RESISTORS          |                  |                                                         |      |
| 131              | 4-151T-34971     | Speaker 18cm Woofer                                   | 2    | R21                |                  | Carbon 100 ohm ±10% ¼W                                  | 1    |
| 132              | 4-151T-35100     | Speaker 5cm Tweeter                                   | 2    | R1                 |                  | Carbon 120 ohm ±10% ¼W                                  | 1    |
| 133              | 4-300T-22000     | Power Trans                                           | 1    | R3,7               |                  | Carbon 3.3K ohm ±10% ¼W                                 | 2    |
| 134              | 4-231T-76271     | Switch, Power                                         | 1    | R11                |                  | Carbon 8.2K ohm ±10% ¼W                                 | 1    |
| 135              | 4-238T-16500     | Switch, Dial Light                                    | 1    | R20                |                  | Carbon 6.8K ohm ±10% ¼W                                 | 1    |
| 136              |                  | Electrolytic Cap. Nonpolar<br>4.7μF 10V               | 2    | R5,12              |                  | Carbon 10K ohm ±10% ¼W                                  | 7    |
| 137              | 4-234T-08200     | Fuse 3A                                               | 1    | 14,17              |                  |                                                         |      |
| 138              | 4-238T-16600     | Switch, Edic                                          | 1    | 19,22              |                  |                                                         |      |
| 139              | 4-235T-84800     | Socket 3P                                             | 1    | 634                |                  |                                                         |      |
| 140              | 4-235T-84900     | Socket 6P                                             | 1    | R6                 |                  | Carbon 22K ohm ±10% ¼W                                  | 1    |
| 141              | 4-511T-09274     | Meter, VU/Tuning                                      | 1    | R9                 |                  | Carbon 47K ohm ±10% ¼W                                  | 1    |
| 142              | 4-511T-09275     | Meter, VU/Battery                                     | 1    | R13                |                  | Carbon 100K ohm ±10% ¼W                                 | 1    |
| 143              | 4-238T-15600     | Switch, Function                                      | 1    | R2                 |                  | Carbon 330K ohm ±10% ¼W                                 | 1    |
| 144              | 4-238T-15800     | Switch, Dolby                                         | 1    | R18                |                  | Carbon 1.5M ohm ±10% ¼W                                 | 1    |
| 145              | 4-238T-16000     | Switch, Tape                                          | 1    | R635,636           |                  | Carbon 10K ohm ±10% ¼W                                  | 3    |
| 146              | 4-540T-00500     | Remote Wire, Function                                 | 2    | 637                |                  |                                                         |      |
| 147              | 4-540T-00600     | Remote Wire, Dolby                                    | 1    | R10                |                  | Carbon 2.2K ohm ±10% ¼W                                 | 1    |
| 148              | 4-540T-00700     | REmote Wire, Tape                                     | 1    | R16                |                  | Carbon 220K ohm ±10% ¼W                                 | 1    |
| 149              | 4-235T-87500     | Socket, 4P, Speaker                                   | 1    | R15                |                  | Carbon 1.5M ohm ±10% ¼W                                 | 1    |
| 150              | 4-235T-87600     | Socket, 4P, Mic                                       | 1    | R8                 |                  | Carbon 18K ohm ±10% ¼W                                  | 1    |
| 151              | 4-153T-11771     | or Microphone                                         | 2    | R739               |                  | Carbon 4.7 ohm ±10% ¼W                                  | 1    |
|                  | 4-153T-11772     |                                                       |      | R737               |                  | Carbon 10 ohm ±10% ¼W                                   | 1    |
| 152              | 4-244T-04800     | Rod Ant                                               | 2    | R864,964           |                  | Carbon 390 ohm ±10% ¼W                                  | 2    |
| 153              | 4-237T-08900     | Terminal Board                                        | 1    | R713               |                  | Carbon 1K ohm ±10% ¼W                                   | 1    |
| 154              | 4-235T-34600     | Socket Rod ANT                                        | 6    | R716,717           |                  | Carbon 4.7K ohm ±10% ¼W                                 | 2    |
| 155              | 4-238T-21200     | Switch, Band Select                                   | 1    | R738,767           |                  | Carbon 12K ohm ±10% ¼W                                  | 2    |
| 156              | 141-2-382T-03100 | Terminal                                              | 4    | R735               |                  | Carbon 3.9K ohm ±10% ¼W                                 | 1    |
| 157              | 4-236T-09902     | Plug Ass'y, 120/200/240V                              | 1    | R715               |                  | Carbon 33K ohm ±10% ¼W                                  | 1    |
| 158              | 4-235T-33200     | Socket                                                | 1    | R869,969           |                  | Carbon 82K ohm ±10% ¼W                                  | 2    |
| 159              | 4-222T-88900     | Variable Resistor, Fine Tuning                        | 1    | R730               |                  | Carbon 22K ohm ±10% ¼W                                  | 1    |
| 160              | 4-540T-00800     | Remote Wire                                           | 1    | R768               |                  | Carbon 5.6K ohm ±10% ¼W                                 | 1    |
| L104             | 4-253R-11160     | RF Choke 1μH                                          | 1    | R772,773           |                  | Carbon 100K ohm ±10% ¼W                                 | 4    |
| C101,102         |                  | Ceramic Cap. 10pF 50V ±10%                            | 2    | 879,979            |                  |                                                         |      |
| R777             |                  | Carbon Res. 56K ohm ±10% ¼W                           | 1    | R774,775           |                  | Carbon 2.2M ohm ±10% ¼W                                 | 2    |
|                  |                  |                                                       |      | R751               |                  | Metal 12 ohm ±10% 1W                                    | 1    |
|                  |                  |                                                       |      | CAPACITORS         |                  |                                                         |      |
|                  |                  |                                                       |      | C868,968           |                  | Ceramic 100pF 50V ±10%                                  | 2    |
|                  |                  |                                                       |      | C866,966           |                  | Ceramic 150pF 50V ±10%                                  | 2    |
|                  |                  |                                                       |      | C869,969           |                  | Ceramic 330pF 50V ±10%                                  | 2    |
|                  |                  |                                                       |      | C863,963           |                  | Ceramic 0.001μF 50V ±10%                                | 2    |
|                  |                  |                                                       |      | C722,733           |                  | Ceramic 0.0033μF 50V ±10%                               | 2    |
|                  |                  |                                                       |      | C735               |                  | Ceramic 0.0047μF 50V ±10%                               | 1    |

# PARTS LIST

| Key No.            | Part No.                     | Description                           | Q'ty | Key No.           | Part No. | Description                 | Q'ty |
|--------------------|------------------------------|---------------------------------------|------|-------------------|----------|-----------------------------|------|
| MAIN AMP PCB ASS'Y |                              |                                       |      | PRE AMP PCB ASS'Y |          |                             |      |
|                    | CAPACITORS                   |                                       |      |                   |          |                             |      |
| C870,970           |                              | BC CON 0.1μF 25V ±10%                 | 2    | Q702,704          |          | Transistor 2SC536           | 24   |
| C734               |                              | BC CON 0.015μF 25V ±10%               | 1    | 706,710           |          |                             |      |
| C871,971           |                              | Mylar 0.15μF 50V ±20%                 | 2    | 801,901           |          |                             |      |
| C721               |                              | Mylar 0.018μF 50V ±5%                 | 1    | 802,902           |          |                             |      |
| C7                 |                              | Electrolytic Nonpolar 1μF 25V         | 1    | 803,903           |          |                             |      |
| C6                 |                              | Electrolytic Nonpolar 10μF 16V        | 1    | 804,904           |          |                             |      |
| C8                 |                              | Ceramic 0.01μF 50V +80-20%            | 1    | 806,906           |          |                             |      |
| C3,4               |                              | Electrolytic 33μF 16V                 | 2    | 807,907           |          |                             |      |
| C1,10              |                              | Electrolytic 470μF 10V                | 4    | 808,908           |          |                             |      |
| 761,762            |                              |                                       |      | 809,909           |          |                             |      |
| C2                 |                              | Electrolytic 10μF 16V                 | 1    | 810,910           |          |                             |      |
| C5                 |                              | Electrolytic 220μF 10V                | 1    | 811,911           |          |                             |      |
| C862,962           |                              | Electrolytic 1μF 25V                  | 2    | D801,901          |          | Diode 1S188 AM              | 8    |
| C864,964           |                              | Electrolytic 22μF 16V                 | 2    | 802,902           |          |                             |      |
| C865,965           |                              | Electrolytic 220μF 10V                | 2    | 805,905           |          |                             |      |
| C867,967           |                              | Electrolytic 470μF 16V                | 2    | 807,907           |          | Diode DS442X                | 21   |
| C872,972           |                              | Electrolytic 1000μF 16V               | 2    | D706,707          |          |                             |      |
| C716,756           |                              | Electrolytic 100μF 50V                | 2    | 708,710           |          |                             |      |
| C717               |                              | Electrolytic 220μF 16V                | 1    | 714,724           |          |                             |      |
| C736               |                              | Electrolytic 10μF 16V                 | 1    | 725,726           |          |                             |      |
| C745               |                              | Electrolytic 470μF 25V                | 1    | 727,728           |          |                             |      |
| C704               |                              | Electrolytic 47μF 10V                 | 1    | 729,730           |          |                             |      |
| C747               |                              | Electrolytic 3300μF 25V               | 1    | 731,733           |          |                             |      |
| C746               |                              | Electrolytic 2200μF 25V               | 1    | 803,903           |          |                             |      |
|                    |                              |                                       |      | 804,904           |          |                             |      |
|                    |                              |                                       |      | 806,906           |          |                             |      |
|                    |                              |                                       |      | 736               |          |                             |      |
|                    |                              |                                       |      | D718              |          | Zener Diode WZ100 or GZA10μ | 1    |
| PRE AMP PCB ASS'Y  |                              |                                       |      | RESISTORS         |          |                             |      |
| 162                | 141-4-233T-55101             | P.C Board Ass'y, Pre Amp.             | 1    | R631              |          | Carbon 1 ohm ±10% ¼W        | 1    |
|                    | 4-231T-86172                 | Switch, R/P                           | 1    | R613,658          |          | Carbon 100 ohm ±10% ¼W      | 2    |
|                    | 4-231T-86173                 | Switch, R/P                           | 1    | R639              |          | Carbon 220 ohm ±10% ¼W      | 1    |
|                    | 4-238T-15700                 | Switch, Function                      | 1    | R633              |          | Carbon 1.2K ohm ±10% ¼W     | 1    |
|                    | 4-238T-15900                 | Switch, Dolby                         | 1    | R628              |          | Carbon 1.8K ohm ±10% ¼W     | 1    |
|                    | 4-238T-16100                 | Switch, Tape Select                   | 1    | R645,657          |          | Carbon 2.2K ohm ±10% ¼W     | 2    |
|                    | 4-236T-10571                 | Plug, 4P                              | 3    | R630              |          | Carbon 3.3K ohm ±10% ¼W     | 1    |
|                    | 4-236T-10573                 | Plug, 6P                              | 1    | R644              |          | Carbon 3.9K ohm ±10% ¼W     | 1    |
|                    | 4-236T-10593                 | Plug, 2P                              | 2    | R603,607          |          | Carbon 8.2K ohm ±10% ¼W     | 2    |
|                    | 4-255T-01673                 | MX Coil, Dolby                        | 2    | R604,608          |          | Carbon 10K ohm ±10% ¼W      | 5    |
|                    | 4-235T-65600                 | Socket, Phono, Line IN, OUT           | 3    | 624,637           |          |                             |      |
|                    | 4-235T-38000                 | Socket, MIC, Ext Speaker              | 3    | 640               |          |                             |      |
|                    | 4-235T-37900                 | Socket, Mic                           | 1    | R617              |          | Carbon 12K ohm ±10% ¼W      | 1    |
|                    | 4-231T-65200                 | Switch, Beat Cancel                   | 1    | R614              |          | Carbon 15K ohm ±10% ¼W      | 1    |
|                    | 4-252T-05600                 | Choke Coil                            | 2    | R623              |          | Carbon 27K ohm ±10% ¼W      | 1    |
|                    | 4-253T-01006                 | Hi-frequency Choke Coil               | 1    | R616,625          |          | Carbon 56K ohm ±10% ¼W      | 3    |
|                    | 4-253T-13600                 | Filter                                | 1    | 642               |          |                             |      |
|                    | 4-253T-01014                 | Hi-frequency Choke Coil               | 1    | R601,605          |          | Carbon 82K ohm ±10% ¼W      | 2    |
| L701               | 4-222T-39478                 | or Semifixed Variable Resistor 100K-B | 3    | R622              |          | Carbon 100K ohm ±10% ¼W     | 1    |
| SVR803             | 4-222T-81478                 | or Semifixed Variable Resistor 10K-B  | 4    | R629              |          | Carbon 47K ohm ±10% ¼W      | 1    |
| 903,701            | 4-222T-39475                 | or Semifixed Variable Resistor 1K-B   | 1    | R621              |          | Carbon 150K ohm ±10% ¼W     | 1    |
| SVR801             | 4-222T-81475                 | or Semifixed Variable Resistor 1K-B   | 3    | R624,643          |          | Carbon 180K ohm ±10% ¼W     | 2    |
| 901,802            | 4-222T-39472                 | or Semifixed Variable Resistor 1K-B   | 1    | R638,615          |          | Carbon 680K ohm ±10% ¼W     | 2    |
| 902                | 4-222T-81472                 | or Semifixed Variable Resistor 1K-B   | 1    | R602,606          |          | Carbon 270K ohm ±10% ¼W     | 2    |
| SVR702             | 4-235T-92671                 | Socket, 3P                            | 1    | R641              |          | Carbon 1M ohm ±10% ¼W       | 1    |
|                    | 4-235T-92672                 | Socket, 4P                            | 1    | R612              |          | Carbon 2.2K ohm ±10% ¼W     | 1    |
|                    | 4-235T-92674                 | Socket, 6P                            | 1    | R618              |          | Carbon 100 ohm ±10% ¼W      | 1    |
|                    | 4-235T-92673                 | Socket, 15P                           | 1    | R619              |          | Carbon 10K ohm ±10% ¼W      | 1    |
| IC601              | IC NE646BN, Dolby            |                                       | 2    | R620              |          | Carbon 220 ohm ±10% ¼W      | 1    |
| IC602              | IC LA3210 SIP09              |                                       | 1    | R752              |          | Carbon 22 ohm ±10% ¼W       | 1    |
| IC701,702          | IC M51207L SIP08             |                                       | 2    | R824,924          |          | Carbon 33 ohm ±10% ¼W       | 2    |
| Q603,604           | IC LA3161 SIP08              |                                       | 2    | R812,912          |          | Carbon 10 ohm ±10% ¼W       | 2    |
| Q601,602           | Transistor 2SA608 or 2SA1015 |                                       | 2    | R814,914          |          | Carbon 56 ohm ±10% ¼W       | 4    |
| 607,605            | Transistor 2SC536 or 2SC1740 |                                       | 5    | 864,964           |          |                             |      |
| 606                | or 2SC945 or 2SC1815         |                                       | 2    | R726,747          |          | Carbon 68 ohm ±10% ¼W       | 2    |
| Q701,712           | Transistor 2SA1015 or 2SA608 |                                       | 2    | R818,918          |          | Carbon 100 ohm ±10% ¼W      | 2    |
| Q711               | Transistor 2SD325            |                                       | 1    | R836,936          |          | Carbon 180 ohm ±10% ¼W      | 2    |
|                    |                              |                                       |      | R925,710          |          | Carbon 220 ohm ±10% ¼W      | 3    |
|                    |                              |                                       |      | 725               |          |                             |      |
|                    |                              |                                       |      | R825              |          | Carbon 220 ohm ±10% ¼W      | 1    |
|                    |                              |                                       |      | R718              |          | Carbon 270 ohm ±10% ¼W      | 1    |
|                    |                              |                                       |      | R859,959          |          | Carbon 330 ohm ±10% ¼W      | 4    |
|                    |                              |                                       |      | 761,762           |          |                             |      |
|                    |                              |                                       |      | R837,937          |          | Carbon 470 ohm ±10% ¼W      | 2    |
|                    |                              |                                       |      | R805,905          |          | Carbon 820 ohm ±10% ¼W      | 4    |
|                    |                              |                                       |      | 808,908           |          |                             |      |
|                    |                              |                                       |      | R840,940          |          | Carbon 1K ohm ±10% ¼W       | 6    |
|                    |                              |                                       |      | 841,941           |          |                             |      |
|                    |                              |                                       |      | 868,968           |          |                             |      |

# PARTS LIST

| Key No.           | Part No.  | Description                               | Q'ty | Key No.           | Part No.   | Description                          | Q'ty |
|-------------------|-----------|-------------------------------------------|------|-------------------|------------|--------------------------------------|------|
| PRE AMP PCB ASS'Y |           |                                           |      | PRE AMP PCB ASS'Y |            |                                      |      |
|                   | RESISTORS |                                           |      |                   | CAPACITORS |                                      |      |
| R753              |           | Carbon 1K ohm $\pm 10\%$ $\frac{1}{4}W$   | 1    | C856,956          |            | Ceramic 100pF 50V $\pm 10\%$         | 2    |
| R863,963          |           | Carbon 1.5K ohm $\pm 10\%$ $\frac{1}{4}W$ | 6    | C819,919          |            | Ceramic 82pF 50V $\pm 10\%$          | 2    |
| 802,902           |           |                                           |      | C848,948          |            | Ceramic 100pF 50V $\pm 10\%$         | 4    |
| 850,950           |           |                                           |      | 860,960           |            |                                      |      |
| R734              |           | Carbon 1.5K ohm $\pm 10\%$ $\frac{1}{4}W$ | 1    | C804,904          |            | Ceramic 180pF 50V $\pm 10\%$         | 4    |
| R801,901          |           | Carbon 2.2K ohm $\pm 10\%$ $\frac{1}{4}W$ | 6    | 880,980           |            |                                      |      |
| 806,906           |           |                                           |      | C718,719          |            | Ceramic 220pF 50V $\pm 10\%$         | 2    |
| 844,944           |           |                                           |      | C878,978          |            | Ceramic 220pF 50V $\pm 10\%$         | 2    |
| R854,954          |           | Carbon-2.2K ohm $\pm 10\%$ $\frac{1}{4}W$ | 6    | C813,913          |            | Ceramic 330pF 50V $\pm 10\%$         | 2    |
| 852,952           |           |                                           |      | C807,907          |            | Ceramic 470pF 50V $\pm 10\%$         | 4    |
| 865,965           |           |                                           |      | 858,958           |            |                                      |      |
| R744,746          |           | Carbon 1 ohm $\pm 10\%$ $\frac{1}{4}W$    | 2    | C814,914          |            | Ceramic 0.001 $\mu$ F 50V $\pm 10\%$ | 6    |
| R826,926          |           | Carbon 2.7K ohm $\pm 10\%$ $\frac{1}{4}W$ | 4    | 845,945           |            |                                      |      |
| 816,916           |           |                                           |      | 881,981           |            |                                      |      |
| R871,971          |           | Carbon 3.3K ohm $\pm 10\%$ $\frac{1}{4}W$ | 4    | C831,931          |            | Ceramic 680pF 50V $\pm 10\%$         | 2    |
| 835,935           |           |                                           |      | C760,763          |            | Ceramic 330pF 50V $\pm 10\%$         | 2    |
| R842,942          |           | Carbon 4.7K ohm $\pm 10\%$ $\frac{1}{4}W$ | 2    | C833,933          |            | Ceramic 0.022 $\mu$ F 50V            | 4    |
| R817,917          |           | Carbon 5.6K ohm $\pm 10\%$ $\frac{1}{4}W$ | 4    | 765,766           |            | +80-20%                              |      |
| 858,958           |           |                                           |      | C611              |            | Ceramic 10pF 50V $\pm 10\%$          | 1    |
| R743              |           | Carbon 5.6K ohm $\pm 10\%$ $\frac{1}{4}W$ | 1    | C613              |            | Ceramic 470pF 50V $\pm 10\%$         | 1    |
| R813,843          |           | Carbon 6.8K ohm $\pm 10\%$ $\frac{1}{4}W$ | 5    | C607              |            | BC CON 0.0022 $\mu$ F 25V $\pm 20\%$ | 1    |
| 819,919           |           |                                           |      | C612              |            | BC CON 0.0068 $\mu$ F 25V $\pm 20\%$ | 1    |
| 943               |           |                                           |      | C608,616          |            | BC CON 0.022 $\mu$ F 25V $\pm 20\%$  | 2    |
| R866,966          |           | Carbon 1.2K ohm $\pm 10\%$ $\frac{1}{4}W$ | 3    | C816,916          |            | BC CON 0.033 $\mu$ F 25V $\pm 10\%$  | 2    |
| 745               |           |                                           |      | C618              |            | Mylar 0.1 $\mu$ F 50V $\pm 5\%$      | 1    |
| R703,704          |           | Carbon 8.2K ohm $\pm 10\%$ $\frac{1}{4}W$ | 3    | C849,949          |            | Mylar 0.033 $\mu$ F 50V $\pm 5\%$    | 2    |
| 706               |           |                                           |      | C614              |            | Tantal 3.3 $\mu$ F 16V $\pm 10\%$    | 1    |
| R701,702          |           | Carbon 8.2K ohm $\pm 10\%$ $\frac{1}{4}W$ | 2    | C836,936          |            | Mylar 0.027 $\mu$ F 50V $\pm 5\%$    | 4    |
| R804,904          |           | Carbon 10K ohm $\pm 10\%$ $\frac{1}{4}W$  | 6    | 854,954           |            |                                      |      |
| 809,909           |           |                                           |      | C837,937          |            | Mylar 0.0047 $\mu$ F 50V $\pm 5\%$   | 2    |
| 849,949           |           |                                           |      | C840,940          |            | Mylar 0.001 $\mu$ F 50V $\pm 5\%$    | 2    |
| R857,957          |           | Carbon 10K ohm $\pm 10\%$ $\frac{1}{4}W$  | 5    | C838,938          |            | Mylar 0.0056 $\mu$ F 50V $\pm 5\%$   | 2    |
| 760,846           |           |                                           |      | C842,942          |            | Mylar 0.047 $\mu$ F 50V $\pm 5\%$    | 2    |
| 946               |           |                                           |      | C801,901          |            | Electrolytic 0.1 $\mu$ F 50V         | 6    |
| R707,709          |           | Carbon 12K ohm $\pm 10\%$ $\frac{1}{4}W$  | 4    | 802,902           |            |                                      |      |
| 873,973           |           |                                           |      | 873,973           |            |                                      |      |
| R758,759          |           | Carbon 15K ohm $\pm 10\%$ $\frac{1}{4}W$  | 5    | C830,930          |            | Electrolytic 0.1 $\mu$ F 50V         | 4    |
| 714,755           |           |                                           |      | 839,939           |            |                                      |      |
| 763               |           |                                           |      | C874,974          |            | Electrolytic 0.22 $\mu$ F 50V        | 2    |
| R764,757          |           | Carbon 15K ohm $\pm 10\%$ $\frac{1}{4}W$  | 2    | C834,934          |            | Electrolytic 0.33 $\mu$ F 50V        | 2    |
| R708,820          |           | Carbon 22K ohm $\pm 10\%$ $\frac{1}{4}W$  | 4    | C805,905          |            | Electrolytic 0.47 $\mu$ F 10V        | 2    |
| 920,732           |           |                                           |      | C818,918          |            | Electrolytic 1 $\mu$ F 10V           | 6    |
| R848,948          |           | Carbon 39K ohm $\pm 10\%$ $\frac{1}{4}W$  | 2    | 843,943           |            |                                      |      |
| R807,907          |           | Carbon 47K ohm $\pm 10\%$ $\frac{1}{4}W$  | 6    | 821,921           |            |                                      |      |
| 821,921           |           |                                           |      | C853,953          |            | Electrolytic 1 $\mu$ F 10V           | 6    |
| 833,933           |           |                                           |      | 847,947           |            |                                      |      |
| R810,910          |           | Carbon 82K ohm $\pm 10\%$ $\frac{1}{4}W$  | 2    | 861,961           |            |                                      |      |
| R874,974          |           | Carbon 100K ohm $\pm 10\%$ $\frac{1}{4}W$ | 6    | C859,959          |            | Electrolytic 1 $\mu$ F 10V           | 6    |
| 856,956           |           |                                           |      | 875,975           |            |                                      |      |
| 811,911           |           |                                           |      | 876,976           |            |                                      |      |
| R845,945          |           | Carbon 15K ohm $\pm 10\%$ $\frac{1}{4}W$  | 2    | C832,932          |            | Electrolytic 4.7 $\mu$ F 10V         | 4    |
| R712              |           | Carbon 47K ohm $\pm 10\%$ $\frac{1}{4}W$  | 1    | 845,945           |            |                                      |      |
| R705,815          |           | Carbon 100K ohm $\pm 10\%$ $\frac{1}{4}W$ | 3    | C715              |            | Electrolytic 4.7 $\mu$ F 10V         | 1    |
| 915               |           |                                           |      | C817,917          |            | Electrolytic 10 $\mu$ F 10V          | 6    |
| R728              |           | Carbon 120K ohm $\pm 10\%$ $\frac{1}{4}W$ | 1    | 806,906           |            |                                      |      |
| R838,938          |           | Carbon 180K ohm $\pm 10\%$ $\frac{1}{4}W$ | 2    | 811,911           |            |                                      |      |
| R867,967          |           | Carbon 220K ohm $\pm 10\%$ $\frac{1}{4}W$ | 2    | C835,935          |            | Electrolytic 10 $\mu$ F 10V          | 4    |
| R834,934          |           | Carbon 270K ohm $\pm 10\%$ $\frac{1}{4}W$ | 4    | 841,941           |            |                                      |      |
| 847,947           |           |                                           |      | C750              |            | Electrolytic 10 $\mu$ F 10V          | 1    |
| R822,922          |           | Carbon 680K ohm $\pm 10\%$ $\frac{1}{4}W$ | 2    | C739,751          |            | Electrolytic 33 $\mu$ F 10V          | 3    |
| R803,903          |           | Carbon 820K ohm $\pm 10\%$ $\frac{1}{4}W$ | 2    | 752               |            |                                      |      |
| R837,937          |           | Carbon 1M ohm $\pm 10\%$ $\frac{1}{4}W$   | 4    | C710              |            | Electrolytic 47 $\mu$ F 10V          | 1    |
| 839,939           |           |                                           |      | C701,748          |            | Electrolytic 47 $\mu$ F 10V          | 3    |
| R749              |           | Carbon 1.5K ohm $\pm 10\%$ $\frac{1}{4}W$ | 1    | 749               |            |                                      |      |
| R876,976          |           | Carbon 12K ohm $\pm 10\%$ $\frac{1}{4}W$  | 2    | C617              |            | AL Electrolytic 1 $\mu$ F 10V        | 1    |
| R877,977          |           | Carbon 820K ohm $\pm 10\%$ $\frac{1}{4}W$ | 2    | C820,920          |            | Electrolytic 100 $\mu$ F 6.3V        | 2    |
| R913              |           | Carbon 6.8K ohm $\pm 10\%$ $\frac{1}{4}W$ | 1    | C703,711          |            | Electrolytic 100 $\mu$ F 10V         | 2    |
| R769,727          |           | Carbon 470 ohm $\pm 10\%$ $\frac{1}{4}W$  | 2    | C747,740          |            | Electrolytic 100 $\mu$ F 16V         | 2    |
| R729              |           | Carbon 27K ohm $\pm 10\%$ $\frac{1}{4}W$  | 1    | C713,757          |            | Electrolytic 100 $\mu$ F 25V         | 2    |
| R770              |           | Carbon 39K ohm $\pm 10\%$ $\frac{1}{4}W$  | 1    | C712,844          |            | Electrolytic 220 $\mu$ F 10V         | 3    |
| R872,972          |           | Carbon 3.9K ohm $\pm 10\%$ $\frac{1}{4}W$ | 2    | 944               |            |                                      |      |
| R740              |           | Metal 47 ohm $\pm 10\%$ 1W                | 1    | C748              |            | Electrolytic 330 $\mu$ F 10V         | 1    |
| R741              |           | Metal 180 ohm $\pm 10\%$ 1W               | 1    | C879,979          |            | Electrolytic 1 $\mu$ F 10V           | 2    |
| R742              |           | Metal 270 ohm $\pm 10\%$ 1W               | 1    | C732              |            | Electrolytic 470 $\mu$ F 10V         | 1    |
|                   |           |                                           |      | C803,903          |            | Electrolytic 4.7 $\mu$ F 10V         | 2    |
|                   |           |                                           |      | C812,912          |            | Electrolytic 1 $\mu$ F 50V           | 2    |
|                   |           |                                           |      | C808,908          |            | Electrolytic 47 $\mu$ F 25V          | 4    |
|                   |           |                                           |      | 815,915           |            |                                      |      |
|                   |           |                                           |      | C601,602          |            | Electrolytic 1 $\mu$ F 25V           | 5    |
|                   |           |                                           |      | 603,604           |            |                                      |      |
|                   |           |                                           |      | 624               |            |                                      |      |

## PARTS LIST

| Key No.              | Part No.          | Description                                | Q'ty | Key No.                 | Part No.          | Description                                    | Q'ty |
|----------------------|-------------------|--------------------------------------------|------|-------------------------|-------------------|------------------------------------------------|------|
| PRE AMP PCB ASS'Y    |                   |                                            |      | MIX MIC VR PCB ASS'Y    |                   |                                                |      |
|                      | <b>CAPACITORS</b> |                                            |      |                         | <b>CAPACITORS</b> |                                                |      |
| C615                 |                   | Electrolytic 4.7 $\mu$ F 25V               | 1    | C705,707                |                   | Electrolytic 1 $\mu$ F 25V                     | 2    |
| C620,626             |                   | Electrolytic 10 $\mu$ F 16V                | 2    | C709                    |                   | Electrolytic 47 $\mu$ F 16V                    | 1    |
| C606,625             |                   | Electrolytic 33 $\mu$ F 16V                | 2    | C708                    |                   | Ceramic 180pF 50V $\pm 10\%$                   | 1    |
| C605,610             |                   | Electrolytic 100 $\mu$ F 16V               | 3    | C706                    |                   | Ceramic 100pF 50V $\pm 10\%$                   | 1    |
| 627                  |                   |                                            |      | C758                    |                   | AL Electrolytic 0.1 $\mu$ F 10V<br>+40--20%    | 1    |
| VOLUME PCB ASS'Y     |                   |                                            |      | MODE SWITCH PCB ASS'Y   |                   |                                                |      |
| 163                  | 141-4-233T-55200  | P.C. Board Ass'y, Volume                   | 1    | 166                     | 141-4-233T-55500  | P.C Board Ass'y, Mode Switch                   | 1    |
|                      | 4-222T-83900      | Variable Resistor 50K-B, VR                | 1    | S701 ~ 4                | 4-238T-16800      | Switch, Mono/Stereo/Wide                       | 1    |
|                      | 4-222T-84000      | Variable Resistor 50K-W,<br>Balance        | 1    | POWER LED PCB ASS'Y     |                   |                                                |      |
|                      | 4-222T-84100      | Variable Resistor 50K-A,<br>Bass/Treble    | 2    | 167                     | 141-4-233T-55600  | P.C Board Ass'y, Power LED                     | 1    |
|                      | 4-238T-16200      | Switch, Loudness                           | 1    | D716,723                |                   | LED SLP155B Red                                | 3    |
|                      | 4-235T-65300      | Socket, 2P                                 | 1    | 501                     |                   |                                                |      |
|                      | <b>RESISTORS</b>  |                                            |      | AMSS LED PCB ASS'Y      |                   |                                                |      |
| R829,929             |                   | Carbon 10K ohm $\pm 10\%$ $\frac{1}{4}$ W  | 2    | 168                     | 141-4-233T-55700  | P.C Board Ass'y, AMSS LED                      | 1    |
| R828,728             |                   | Carbon 5.6K ohm $\pm 10\%$ $\frac{1}{4}$ W | 4    |                         | 4-238T-16400      | Switch                                         | 1    |
| 878,978              |                   |                                            |      | D606,607                |                   | LED SLP155B Red                                | 7    |
| R931,831             |                   | Carbon 2.7K ohm $\pm 10\%$ $\frac{1}{4}$ W | 2    | 608,609                 |                   |                                                |      |
| R830,930             |                   | Carbon 1.5K ohm $\pm 10\%$ $\frac{1}{4}$ W | 2    | 610,611                 |                   |                                                |      |
|                      | <b>CAPACITORS</b> |                                            |      | 612                     |                   |                                                |      |
| C829,929             |                   | BC CON 0.068 $\mu$ F 25V $\pm 20\%$        | 4    | D601                    |                   | Zener Diode GZA5.6 $\mu$<br>or XZ060           | 1    |
| 824,924              |                   |                                            |      | IC603                   |                   | IC M54832P                                     | 1    |
| C825,925             |                   | BC CON 0.022 $\mu$ F 25V $\pm 20\%$        | 2    | D613,614                |                   | Diode DS442X or 1S2473                         | 2    |
| C823,923             |                   | BC CON 0.01 $\mu$ F 25V $\pm 20\%$         | 2    |                         | <b>RESISTORS</b>  |                                                |      |
| C828,928             |                   | Ceramic 0.0047 $\mu$ F 50V $\pm 10\%$      | 2    | R653                    |                   | Carbon 12K ohm $\pm 10\%$ $\frac{1}{4}$ W      | 1    |
| C827,927             |                   | Ceramic 100pF 50V $\pm 10\%$               | 2    | R647                    |                   | Carbon 560 ohm $\pm 10\%$ $\frac{1}{4}$ W      | 1    |
| C822,982             |                   | Electrolytic 0.22 $\mu$ F 50V              | 2    | R656                    |                   | Carbon 680 ohm $\pm 10\%$ $\frac{1}{4}$ W      | 1    |
| C883,983             |                   | Electrolytic 10 $\mu$ F 10V                | 2    | R655                    |                   | Carbon 1.2K ohm $\pm 10\%$ $\frac{1}{4}$ W     | 1    |
| C826,926             |                   | Electrolytic 0.33 $\mu$ F 50V              | 2    | R652,648                |                   | Carbon 2.2K ohm $\pm 10\%$ $\frac{1}{4}$ W     | 2    |
| C822,922             |                   | Electrolytic 0.15 $\mu$ F 50V              | 2    | R650                    |                   | Carbon 6.8K ohm $\pm 10\%$ $\frac{1}{4}$ W     | 1    |
| INPUT VR PCB ASS'Y   |                   |                                            |      | R649                    |                   | Carbon 10K ohm $\pm 10\%$ $\frac{1}{4}$ W      | 1    |
| 164                  | 141-4-233T-55300  | P.C Board Ass'y, Input VR                  | 1    | R654                    |                   | Carbon 12K ohm $\pm 10\%$ $\frac{1}{4}$ W      | 1    |
|                      | 4-222T-84200      | Variable Resistor 10K-A                    | 1    | R651                    |                   | Carbon 47K ohm $\pm 10\%$ $\frac{1}{4}$ W      | 1    |
|                      | 4-238T-16300      | Switch, ALC                                | 1    |                         | <b>CAPACITORS</b> |                                                |      |
|                      | <b>RESISTORS</b>  |                                            |      | C621                    |                   | Ceramic 470pF 50V $\pm 10\%$                   | 1    |
| R832,932             |                   | Carbon 6.8K ohm $\pm 10\%$ $\frac{1}{4}$ W | 2    | C628                    |                   | Ceramic 680pF 50V $\pm 10\%$                   | 1    |
| R875,975             |                   | Carbon 6.8K ohm $\pm 10\%$ $\frac{1}{4}$ W | 2    | C622                    |                   | AL Electrolytic 0.47 $\mu$ F 10V<br>$\pm 10\%$ | 1    |
| MIX MIC VR PCB ASS'Y |                   |                                            |      | C623                    |                   | Electrolytic 10 $\mu$ F 10V                    | 1    |
| 165                  | 141-4-233T-55401  | P.C Board Ass'y Mix Mic VR                 | 1    | C629                    |                   | BC CON 0.0047 $\mu$ F 25V $\pm 20\%$           | 1    |
| Q703                 |                   | Transistor 2SC536                          | 1    | MECHANISM LED PCB ASS'Y |                   |                                                |      |
|                      | 4-222T-84300      | Variable Resistor 10K-A                    | 1    | 169                     | 141-4-233T-55800  | P.C Board Ass'y, Mechanism                     | 1    |
|                      | 4-235T-60672      | Socket                                     | 1    |                         |                   | LED                                            |      |
|                      | <b>RESISTORS</b>  |                                            |      | D715,717                |                   | LED SLP144B Red                                | 2    |
| R771                 |                   | Carbon 5.6K ohm $\pm 10\%$ $\frac{1}{4}$ W | 1    |                         | <b>RESISTORS</b>  |                                                |      |
| R720                 |                   | Carbon 820K ohm $\pm 10\%$ $\frac{1}{4}$ W | 1    | R731,736                |                   | Carbon 1.5K ohm $\pm 10\%$ $\frac{1}{4}$ W     | 2    |
| R721                 |                   | Carbon 10K ohm $\pm 10\%$ $\frac{1}{4}$ W  | 1    | DIAL LIGHT PCB ASS'Y    |                   |                                                |      |
| R719,723             |                   | Carbon 1.5K ohm $\pm 10\%$ $\frac{1}{4}$ W | 3    | 170                     | 141-4-233T-55900  | P.C Board Ass'y, Dial Light                    | 1    |
| 765                  |                   |                                            |      |                         | 4-612T-15400      | Lamp 150mA 12V                                 | 1    |
| R722                 |                   | Carbon 27 ohm $\pm 10\%$ $\frac{1}{4}$ W   | 1    |                         |                   |                                                |      |
| R724                 |                   | Carbon 100 ohm $\pm 10\%$ $\frac{1}{4}$ W  | 1    |                         |                   |                                                |      |

# PARTS LIST

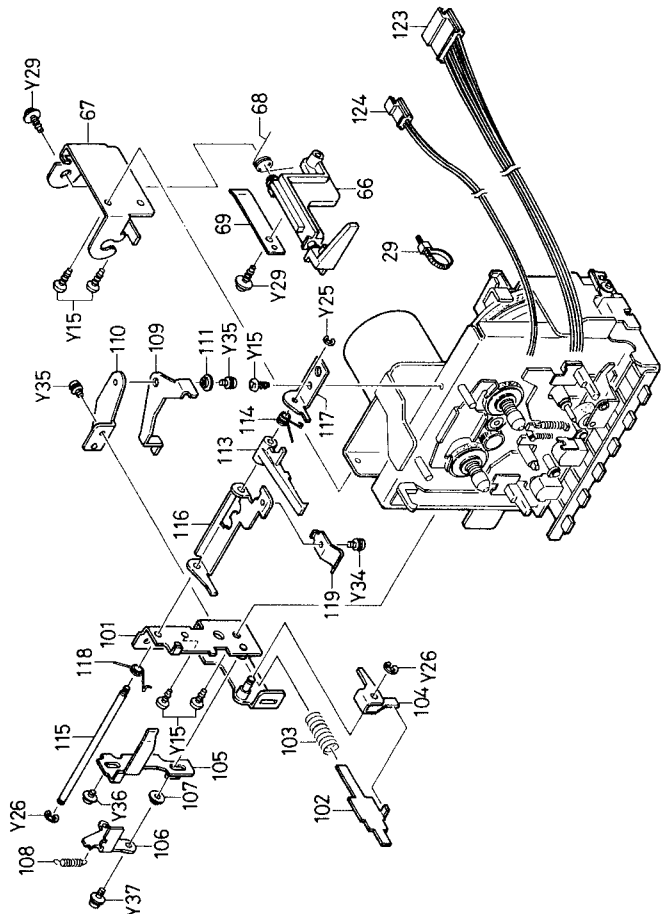
| Key No.                         | Part No.         | Description                         | Q'ty | Key No.         | Part No.                | Description             | Q'ty |      |                         |   |
|---------------------------------|------------------|-------------------------------------|------|-----------------|-------------------------|-------------------------|------|------|-------------------------|---|
| POWER SUPPLY PCB ASS'Y          |                  |                                     |      | TUNER PCB ASS'Y |                         |                         |      |      |                         |   |
| 171                             | 141-4-233T-56071 | P.C Board Ass'y, Power Supply       | 1    | RESISTOR        |                         | Carbon 470K ohm ±10% ¼W | 1    |      |                         |   |
| D719,720<br>721,722             | 4-235T-35871     | Socket, AC                          | 1    |                 |                         |                         |      | R102 | Carbon 220 ohm ±10% ¼W  | 1 |
|                                 | 4-235T-87400     | Socket, 2P                          | 1    |                 |                         |                         |      | R103 | Carbon 1K ohm ±10% ¼W   | 1 |
|                                 | 141-2-135T-44900 | Diode GP20D                         | 4    |                 |                         |                         |      | R104 | Carbon 820K ohm ±10% ¼W | 1 |
| C741,742<br>743,744             | 141-2-381T-04200 | Cover, AC Socket                    | 1    |                 |                         |                         |      | R105 | Carbon 1K ohm ±10% ¼W   | 1 |
|                                 |                  | Bracket, Fuse                       | 2    |                 |                         |                         |      | R106 | Carbon 6.8K ohm ±10% ¼W | 1 |
|                                 |                  | Ceramic Cap 0.022μF 50V<br>+80--20% | 4    |                 |                         |                         |      | R107 | Carbon 22 ohm ±10% ¼W   | 1 |
| HEADPHONE PCB ASS'Y             |                  |                                     |      |                 |                         |                         |      | R108 | Carbon 560 ohm ±10% ¼W  | 1 |
| 172                             | 141-4-233T-56100 | P.C Board Ass'y, Headphone          | 1    |                 |                         |                         |      | R109 | Carbon 3.9K ohm ±10% ¼W | 1 |
| R870,970                        | 4-235T-60600     | Socket                              | 1    |                 |                         |                         |      | R110 | Carbon 100 ohm ±10% ¼W  | 1 |
|                                 | 4-235T-85600     | Socket, 2P                          | 1    |                 |                         |                         |      | R111 | Carbon 100K ohm ±10% ¼W | 1 |
|                                 | 4-235T-85700     | Socket, 3P                          | 1    |                 |                         |                         |      | R112 | Carbon 10K ohm ±10% ¼W  | 1 |
|                                 | RESISTORS        |                                     |      |                 |                         |                         |      | R113 | Carbon 1.2K ohm ±10% ¼W | 1 |
|                                 |                  | Solid 100 ohm ± 10% ½W              | 2    |                 |                         |                         |      | R114 | Carbon 3.3K ohm ±10% ¼W | 1 |
| AUTOSTOP PCB ASS'Y              |                  |                                     |      |                 |                         |                         |      | R115 | Carbon 33 ohm ±10% ¼W   | 1 |
| 173                             | 141-4-233T-56600 | P.C Board Ass'y, Auto Stop          | 1    |                 |                         |                         |      | R116 | Carbon 15K ohm ±10% ¼W  | 1 |
|                                 |                  | Magneto Sensor DM101A               | 1    |                 |                         |                         |      | R117 | Carbon 100 ohm ±10% ¼W  | 1 |
| TUNER PCB ASS'Y                 |                  |                                     |      |                 |                         |                         |      | R118 | Carbon 220 ohm ±10% ¼W  | 1 |
| 174                             | 141-2-233T-67800 | P.C. Board Ass'y Tuner              | 1    |                 |                         |                         |      | R119 | Carbon 1.5K ohm ±10% ¼W | 1 |
| L101,102                        | 4-224T-15200     | Variable Capacitor                  | 1    |                 |                         |                         |      | R120 | Carbon 10 ohm ±10% ¼W   | 1 |
|                                 | 4-265R-11800     | VHF Coil                            | 2    |                 |                         |                         |      | R121 | Carbon 56 ohm ±10% ¼W   | 1 |
| L103                            | 4-257T-39240     | Antenna Coil, FM                    | 1    |                 |                         |                         |      | R122 | Carbon 10 ohm ±10% ¼W   | 1 |
| L105,106                        | 4-265R-11900     | VHF Coil                            | 2    |                 |                         |                         |      | R123 | Carbon 270 ohm ±10% ¼W  | 1 |
| L107                            | 4-265R-11200     | VHF Coil                            | 1    |                 |                         |                         |      | R124 | Carbon 5.6 ohm ±10% ¼W  | 1 |
| L108                            | 4-265T-02600     | VHF Coil                            | 1    |                 |                         |                         |      | R125 | Carbon 68K ohm ±10% ¼W  | 1 |
| L109                            | 4-253R-11160     | RF Choke Coil 1μH                   | 1    |                 |                         |                         |      | R126 | Carbon 10 ohm ±10% ¼W   | 1 |
| L110                            | 4-257T-28630     | Antenna Coil, SW2                   | 1    |                 |                         |                         |      | R127 | Carbon 270K ohm ±10% ¼W | 1 |
| L111                            | 4-265R-00700     | VHF Coil                            | 1    |                 |                         |                         |      | R128 | Carbon 1.2K ohm ±10% ¼W | 1 |
| L112A,B                         | 4-257T-39901     | Antenna Coil Ass'y                  | 1    |                 |                         |                         |      | R130 | Carbon 2.2K ohm ±10% ¼W | 1 |
| L113                            | 4-258T-07540     | OSC Coil                            | 1    |                 |                         |                         |      | R132 | Carbon 470K ohm ±10% ¼W | 1 |
| L114                            | 4-258T-07640     | OSC Coil                            | 1    |                 |                         |                         |      | R133 | Carbon 100K ohm ±10% ¼W | 1 |
| L115                            | 4-258T-05611     | OSC Coil                            | 1    |                 |                         |                         |      | R134 | Carbon 27K ohm ±10% ¼W  | 1 |
| T301                            | 4-256R-20810     | IFT                                 | 1    |                 |                         |                         |      | R135 | Carbon 27K ohm ±10% ¼W  | 1 |
| T302                            | 4-256T-11210     | IFT                                 | 1    |                 |                         |                         |      | R136 | Carbon 27K ohm ±10% ¼W  | 1 |
| T303                            | 4-256T-21510     | IFT                                 | 1    |                 |                         |                         |      | R137 | Carbon 100 ohm ±10% ¼W  | 1 |
| T304                            | 4-256T-21410     | IFT                                 | 1    |                 |                         |                         |      | R301 | Carbon 15K ohm ±10% ¼W  | 1 |
| CT1 ~ 8                         | 4-224R-01400     | Trimmer                             | 8    |                 |                         |                         |      | R302 | Carbon 560 ohm ±10% ¼W  | 1 |
| CF301, 302                      | 4-256T-80474     | IF Filter                           | 2    |                 |                         |                         |      | R303 | Carbon 330 ohm ±10% ¼W  | 1 |
| CT303                           | 4-256T-81100     | IF Filter                           | 1    |                 |                         |                         |      | R304 | Carbon 33 ohm ±10% ¼W   | 1 |
| SVR301                          | 4-222T-39575     | Semifixed Variable Resistor         | 1    |                 |                         |                         |      | R305 | Carbon 220 ohm ±10% ¼W  | 1 |
| SVR302                          | 4-222T-39574     | Semifixed Variable Resistor         | 1    |                 |                         |                         |      | R306 | Carbon 330 ohm ±10% ¼W  | 1 |
| SVR501                          | 4-222T-39575     | Semifixed Variable Resistor         | 1    |                 |                         |                         |      | R307 | Carbon 10K ohm ±10% ¼W  | 1 |
| S101-1 ~ 9                      | 4-238T-21300     | Switch                              | 1    |                 |                         |                         |      | R308 | Carbon 33 ohm ±10% ¼W   | 1 |
| B101                            | 123-2-471R-10900 | Core                                | 1    |                 |                         |                         |      | R309 | Carbon 10K ohm ±10% ¼W  | 1 |
| B102                            | 123-2-471R-10400 | Core                                | 1    |                 |                         |                         |      | R310 | Carbon 10 ohm ±10% ¼W   | 1 |
|                                 | 4-227T-02300     | CR Pack                             | 2    |                 |                         |                         |      | R311 | Carbon 1K ohm ±10% ¼W   | 1 |
|                                 | 4-235T-34600     | Socket                              | 1    |                 |                         |                         |      | R312 | Carbon 2.2K ohm ±10% ¼W | 1 |
|                                 | 4-235T-69471     | Socket, 6P                          | 1    |                 |                         |                         |      | R313 | Carbon 3.3K ohm ±10% ¼W | 1 |
|                                 | 4-235T-65300     | Socket, 2P                          | 2    |                 |                         |                         |      | R314 | Carbon 33K ohm ±10% ¼W  | 1 |
|                                 | 141-2-322T-34900 | Shield Plate                        | 1    |                 |                         |                         |      | R315 | Carbon 5.6K ohm ±10% ¼W | 1 |
|                                 | 141-2-322T-34800 | Shield Plate                        | 1    |                 |                         |                         |      | R316 | Carbon 5.6K ohm ±10% ¼W | 1 |
| IC301                           |                  | IC HA12421A                         | 1    |                 |                         |                         |      | R317 | Carbon 220 ohm ±10% ¼W  | 1 |
| IC501                           |                  | IC LA3361                           | 1    |                 |                         |                         |      | R318 | Carbon 5.6K ohm ±10% ¼W | 1 |
| Q101                            |                  | Transistor FET 2SK195               | 1    |                 |                         |                         |      | R319 | Carbon 15K ohm ±10% ¼W  | 1 |
| Q102                            |                  | Transistor 2SC535                   | 1    |                 |                         |                         |      | R320 | Carbon 150 ohm ±10% ¼W  | 1 |
| Q103,104, 105,301               |                  | Transistor 2SC930                   | 4    |                 |                         |                         |      | R321 | Carbon 33 ohm ±10% ¼W   | 1 |
| Q302                            |                  | Transistor 2SC536                   | 1    |                 |                         |                         |      | R322 | Carbon 1M ohm ±10% ¼W   | 1 |
| D101,102, 103,105, 301,303, 501 |                  | Diode DS442X                        | 7    |                 |                         |                         |      | R323 | Carbon 1K ohm ±10% ¼W   | 1 |
| D104,106                        |                  | Diode SD115                         | 2    |                 |                         |                         |      | R324 | Carbon 22K ohm ±10% ¼W  | 1 |
|                                 |                  |                                     |      |                 |                         |                         |      | R325 | Carbon 56K ohm ±10% ¼W  | 1 |
|                                 |                  |                                     |      | R326            | Carbon 1.2K ohm ±10% ¼W | 1                       |      |      |                         |   |
|                                 |                  |                                     |      | R327            | Carbon 470K ohm ±10% ¼W | 1                       |      |      |                         |   |
|                                 |                  |                                     |      | R501            | Carbon 1K ohm ±10% ¼W   | 1                       |      |      |                         |   |
|                                 |                  |                                     |      | R503            | Carbon 6.8K ohm ±10% ¼W | 1                       |      |      |                         |   |
|                                 |                  |                                     |      | R504            | Carbon 1K ohm ±10% ¼W   | 1                       |      |      |                         |   |
|                                 |                  |                                     |      | R506            | Carbon 22K ohm ±10% ¼W  | 1                       |      |      |                         |   |
|                                 |                  |                                     |      | R507,508        | Carbon 3.3K ohm ±10% ¼W | 2                       |      |      |                         |   |
|                                 |                  |                                     |      | R509            | Carbon 680 ohm ±10% ¼W  | 1                       |      |      |                         |   |
|                                 |                  |                                     |      | R510            | Carbon 1.8K ohm ±10% ¼W | 1                       |      |      |                         |   |
|                                 |                  |                                     |      | R511,512        | Carbon 12K ohm ±10% ¼W  | 2                       |      |      |                         |   |
|                                 |                  |                                     |      | R515            | Carbon 270 ohm ±10% ¼W  | 1                       |      |      |                         |   |
|                                 |                  |                                     |      | R516            | Carbon 1.2K ohm ±10% ¼W | 1                       |      |      |                         |   |
|                                 |                  |                                     |      | R517            | Carbon 390 ohm ±10% ¼W  | 1                       |      |      |                         |   |
|                                 |                  |                                     |      | CAPACITORS      |                         |                         |      |      |                         |   |
|                                 |                  |                                     |      | C103            | Ceramic 15pF            | 50V ±10%                | 1    |      |                         |   |
|                                 |                  |                                     |      | C104            | Ceramic 15pF            | 50V ±10%                | 1    |      |                         |   |



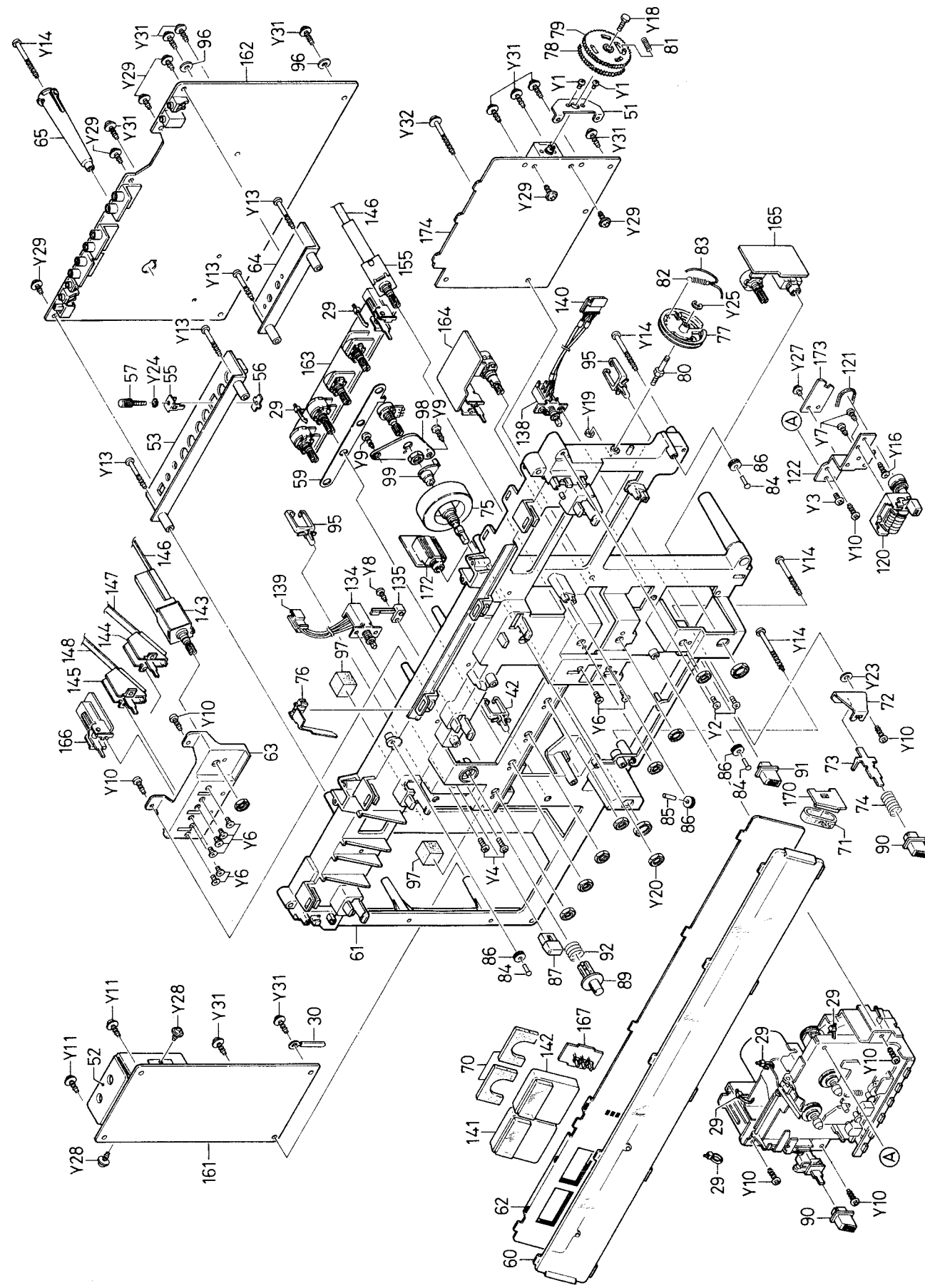
PARTS LIST

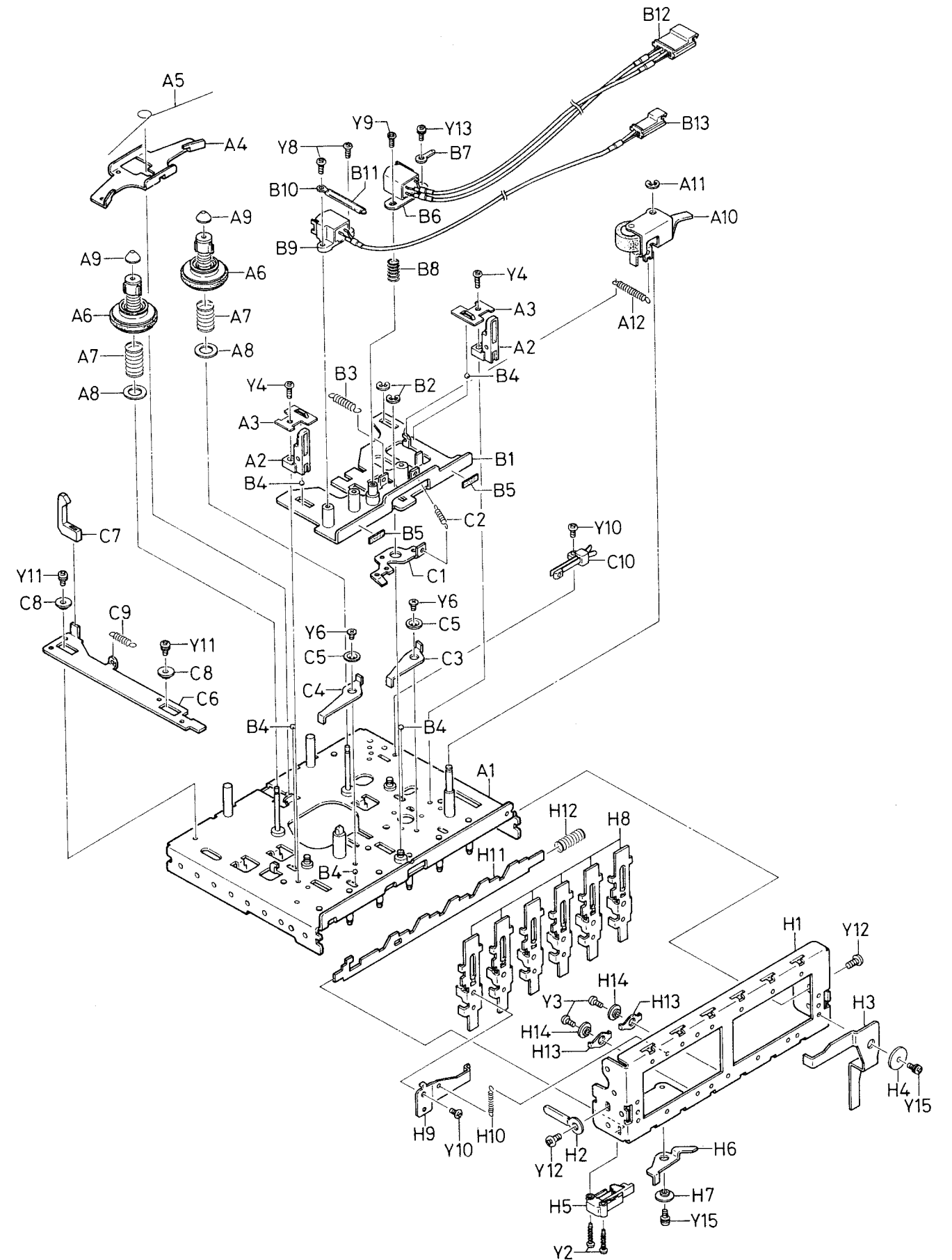
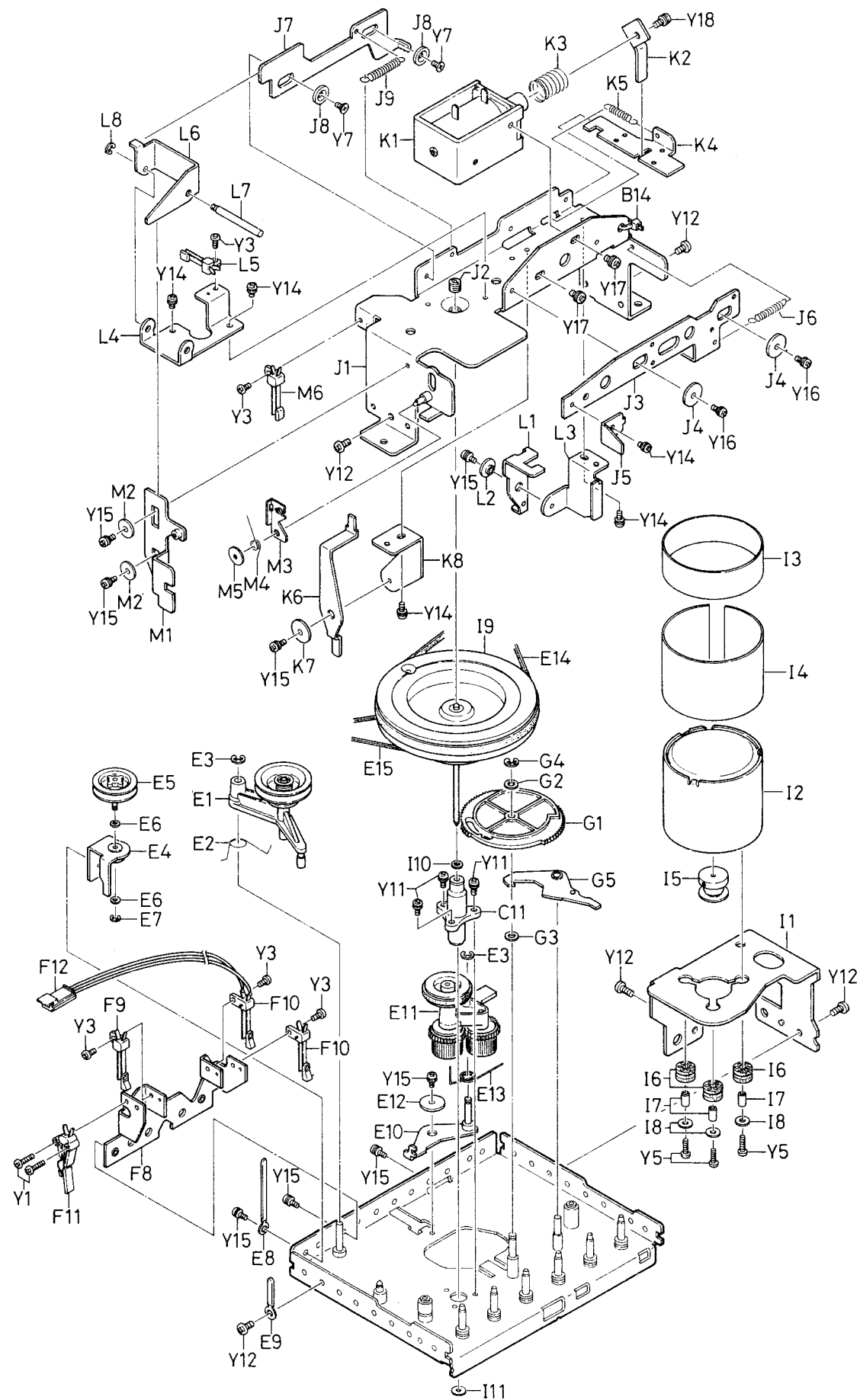
| Key No.         | Part No. | Description                     | Q'ty |
|-----------------|----------|---------------------------------|------|
| TUNER PCB ASS'Y |          |                                 |      |
| C105            |          | Ceramic 24pF 50V ±10%           | 1    |
| C106            |          | Ceramic 16pF 50V ±10%           | 1    |
| C110            |          | Ceramic 18pF 50V ±10%           | 1    |
| C111            |          | Ceramic 4pF 50V                 | 1    |
| C112            |          | Ceramic 2pF ±0.25pF 50V         | 1    |
| C113            |          | Ceramic 220pF 50V ±20%          | 1    |
| C117            |          | Ceramic 12pF 50V ±10%           | 1    |
| C118            |          | Ceramic 12pF 50V ±10%           | 1    |
| C119            |          | Ceramic 15pF 50V ±10%           | 1    |
| C120            |          | Ceramic 18pF 50V ±10%           | 1    |
| C121            |          | Ceramic 4pF ±0.25pF 50V         | 1    |
| C123            |          | Ceramic 47pF 50V ±10%           | 1    |
| C125            |          | Ceramic 10pF 50V ±10%           | 1    |
| C126            |          | Ceramic 7pF ±0.5pF 50V          | 1    |
| C127            |          | Ceramic 30pF 50V ±10%           | 1    |
| C131            |          | Ceramic 10pF 50V ±10%           | 1    |
| C139            |          | Ceramic 3pF ±0.25pF 50V         | 1    |
| C107            |          | Ceramic 0.022μF 50V +80-20%     | 1    |
| C108            |          | Ceramic 0.047μF 50V +80-20%     | 1    |
| C109            |          | Ceramic 0.047μF 50V +80-20%     | 1    |
| C114            |          | Ceramic 0.022μF 50V +80-20%     | 1    |
| C115            |          | Ceramic 0.022μF 50V +80-20%     | 1    |
| C116            |          | Ceramic 0.022μF 50V +80-20%     | 1    |
| C122            |          | Ceramic 0.047μF 50V +80-20%     | 1    |
| C124            |          | Ceramic 0.022μF 50V +80-20%     | 1    |
| C142            |          | Ceramic 0.047μF 50V +80-20%     | 1    |
| C144            |          | Ceramic 0.022μF 50V +80-20%     | 1    |
| C145            |          | Ceramic 0.01μF 50V +80-20%      | 1    |
| C128            |          | BC CON 0.01μF 25V ±20%          | 1    |
| C132            |          | Mylar 0.0033μF 50V ±20%         | 1    |
| C134            |          | BC CON 0.0022μF 25V ±20%        | 1    |
| C135            |          | Styrol 1400pF 50V ±5%           | 1    |
| C136            |          | Styrol 350pF 50V ±5%            | 1    |
| C138            |          | BC CON 0.0033μF 25V ±20%        | 1    |
| C140            |          | BC CON 0.0047μF 25V ±20%        | 1    |
| C141            |          | Electrolytic 0.47μF 25V         | 1    |
| C313            |          | Electrolytic 100μF 10V          | 1    |
| C317            |          | Electrolytic 10μF 16V           | 1    |
| C320            |          | Electrolytic 1μF 25V            | 1    |
| C324            |          | Electrolytic Nonpolar 2.2μF 16V | 1    |
| C326            |          | Electrolytic 470μF 16V          | 1    |
| C328            |          | Electrolytic 22μF 25V           | 1    |
| C301            |          | Ceramic 220pF 50V ±10%          | 1    |
| C311            |          | Ceramic 220pF 50V ±10%          | 1    |
| C315            |          | Ceramic 220pF 50V ±10%          | 1    |
| C327            |          | Ceramic 100pF 50V ±10%          | 1    |
| C302            |          | BC CON 0.022μF 25V ±20%         | 1    |
| C307            |          | BC CON 0.022μF 25V ±20%         | 1    |
| C309            |          | BC CON 0.022μF 25V ±20%         | 1    |
| C312            |          | BC CON 0.022μF 25V ±20%         | 1    |
| C318            |          | BC CON 0.022μF 25V ±20%         | 1    |
| C319            |          | BC CON 0.01μF 25V ±20%          | 1    |
| C321            |          | BC CON 0.022μF 25V ±20%         | 1    |
| C322            |          | BC CON 0.015μF 25V ±20%         | 1    |
| C325            |          | BC CON 0.022μF 25V ±20%         | 1    |
| C303            |          | Ceramic 0.047μF +80-20% 50V     | 1    |
| C305            |          | Ceramic 0.047μF +80-20% 50V     | 1    |
| C308            |          | Ceramic 0.022μF +80-20% 50V     | 1    |
| C310            |          | Ceramic 0.022μF +80-20% 50V     | 1    |
| C314            |          | Ceramic 0.022μF +80-20% 50V     | 1    |

| Key No.         | Part No. | Description                 | Q'ty |
|-----------------|----------|-----------------------------|------|
| TUNER PCB ASS'Y |          |                             |      |
| C329            |          | Ceramic 0.022μF 50V +80-20% | 1    |
| C330            |          | BC CON 0.047μF 25V ±20%     | 1    |
| C501            |          | BC CON 0.047μF 25V ±20%     | 1    |
| C502            |          | P P CON 0.001μF 100V ±5%    | 1    |
| C503            |          | Ceramic 0.022μF +80-20% 50V | 1    |
| C504            |          | Electrolytic 0.47μF 10V     | 1    |
| C507            |          | Electrolytic 1μF 25V        | 1    |
| C508,509        |          | BC CON 0.0082μF 25V ±20%    | 2    |
| C510,511        |          | BC CON 0.1μF 25V ±20%       | 2    |
| C512            |          | Electrolytic 470μF 16V      | 1    |
| C513            |          | Ceramic 0.022μF +80-20% 50V | 1    |
| C506            |          | Electrolytic 1μF 25V        | 1    |
| C505            |          | Electrolytic 1μF 25V        | 1    |



CHASSIS EXPLODED VIEW



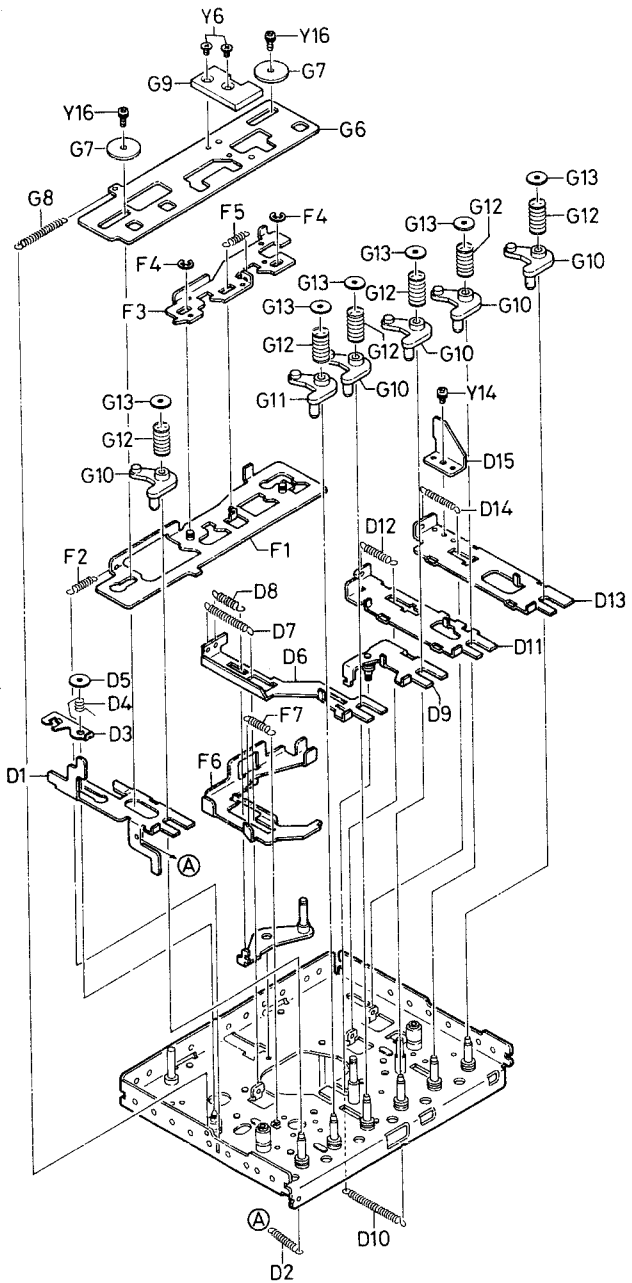


PARTS LIST

| Key No.   | Part No.         | Description              | Q'ty | Key No.   | Part No.         | Description             | Q'ty |
|-----------|------------------|--------------------------|------|-----------|------------------|-------------------------|------|
| MECHANISM |                  |                          |      | MECHANISM |                  |                         |      |
| A1        | 141-0-311T-36200 | Chassis Ass'y            | 1    | G1        | 141-2-581T-18500 | Gear                    | 1    |
| A2        | 141-2-464T-36200 | Fixer                    | 2    | G2        | 141-2-453T-30301 | Washer                  | 1    |
| A3        | 141-2-853T-69300 | Spring Plate             | 2    | G3        | 141-2-453T-30302 | Washer                  | 1    |
| A4        | 141-2-731T-82300 | Slide                    | 1    | G4        | 141-2-457T-25100 | Special Washer          | 1    |
| A5        | 141-2-852T-63900 | Spring Wire              | 1    | G5        | 141-0-742T-57300 | Lever Ass'y             | 1    |
| A6        | 141-0-531T-13211 | Reel Plate Ass'y         | 2    | G6        | 141-2-731T-85000 | Slide                   | 1    |
| A7        | 141-2-855T-63500 | Spring Coil              | 2    | G7        | 141-2-457T-35900 | Special Washer          | 2    |
| A8        | 141-2-453T-30800 | Washer                   | 2    | G8        | 141-2-855T-65200 | Spring Coil             | 1    |
| A9        | 141-2-465T-18400 | Stopper                  | 2    | G9        | 141-2-823T-02100 | Lever Guide             | 1    |
| A10       | 141-0-545T-07000 | Lever Pinch Roller Ass'y | 1    | G10       | 141-2-742T-57400 | Lever                   | 5    |
| A11       | 141-2-457T-25100 | Special Washer           | 1    | G11       | 141-2-742T-57500 | Lever                   | 1    |
| A12       | 141-2-855T-63700 | Spring Coil              | 1    | G12       | 141-2-855T-65300 | Spring Coil             | 6    |
| B1        | 141-0-731T-84200 | Slide Ass'y              | 1    | G13       | 141-2-465T-18700 | Stopper                 | 6    |
| B2        | 141-2-457T-25100 | Special Washer           | 2    | H1        | 141-2-613T-03600 | Frame Push Button Lever | 1    |
| B3        | 141-2-855T-63800 | Spring Coil              | 1    | H2        | 123-2-472R-00601 | Lug                     | 1    |
| B4        | 141-2-345T-00700 | Steel Ball               | 4    | H3        | 141-2-742T-57600 | Lever                   | 1    |
| B5        | 141-2-441T-08100 | Felt Cushion             | 2    | H4        | 141-2-462T-65200 | Boss                    | 1    |
| B6        | 4-242T-24671     | R/P Head                 | 1    | H5        | 4-238T-22300     | Switch                  | 1    |
| B7        | 141-2-472T-10300 | Lug                      | 1    | H6        | 141-2-742T-57700 | Lever                   | 1    |
| B8        | 141-2-855T-63900 | Spring Coil              | 1    | H7        | 141-2-462T-65300 | Boss                    | 1    |
| B9        | 4-242T-24700     | E Head                   | 1    | H8        | 141-2-731T-85100 | Slide                   | 6    |
| B10       | 141-2-472T-08800 | Lug                      | 1    | H9        | 141-2-742T-57800 | Lever                   | 1    |
| B11       | 141-2-490T-08230 | Tube                     | 1    | H10       | 141-2-855T-65400 | Spring Coil             | 1    |
| B12       | 4-235T-94400     | Socket                   | 1    | H11       | 141-2-673T-04000 | Slide Cum               | 1    |
| B13       | 4-235T-94500     | Socket                   | 1    | H12       | 141-2-855T-66100 | Spring Coil             | 1    |
| B14       | 141-2-464T-20671 | Fixer                    | 1    | H13       | 141-2-742T-57900 | Lever                   | 2    |
| C1        | 141-2-742T-56900 | Lever                    | 1    | H14       | 141-2-462T-65400 | Boss                    | 2    |
| C2        | 141-2-855T-64000 | Spring Coil              | 1    | I1        | 141-2-378T-10700 | Bracket Motor           | 1    |
| C3        | 141-2-742T-57000 | Lever                    | 1    | I2        | 4-527T-13000     | Motor                   | 1    |
| C4        | 141-2-742T-57100 | Lever                    | 1    | I3        | 141-2-184T-07600 | Tape                    | 1    |
| C5        | 141-2-462T-64900 | Boss                     | 2    | I4        | 141-2-322T-27100 | Shield Plate            | 1    |
| C6        | 141-2-731T-84300 | Slide                    | 1    | I5        | 141-0-661T-76100 | Pulley Motor Ass'y      | 1    |
| C7        | 141-2-823T-02000 | Lever Guide              | 1    | I6        | 141-2-445T-25200 | Rubber Cushion          | 3    |
| C8        | 141-2-462T-65000 | Boss                     | 2    | I7        | 141-2-461T-39200 | Pipe                    | 3    |
| C9        | 141-2-855T-64100 | Spring Coil              | 1    | I8        | 141-2-457T-36000 | Special Washer          | 3    |
| C10       | 4-238T-21800     | Switch                   | 1    | I9        | 141-0-521T-11800 | Flywheel Ass'y          | 1    |
| C11       | 141-0-571T-19200 | Bearing Axis Ass'y       | 1    | I10       | 141-2-453T-30201 | Washer                  | 1    |
| D1        | 141-0-731T-84400 | Slide Ass'y              | 1    | I11       | 141-2-457T-35200 | Special Washer          | 1    |
| D2        | 141-2-855T-64200 | Spring Coil              | 1    | J1        | 141-0-524T-09500 | Bracket Flywheel Ass'y  | 1    |
| D3        | 141-2-614T-05800 | Lever Lock               | 1    | J2        | 141-2-573T-11500 | Bearing                 | 1    |
| D4        | 141-2-852T-65500 | Spring Wire              | 1    | J3        | 141-0-731T-85200 | Slide Ass'y             | 1    |
| D5        | 141-2-457T-35800 | Special Washer           | 1    | J4        | 141-2-462T-65500 | Boss                    | 2    |
| D6        | 141-2-731T-84500 | Slide                    | 1    | J5        | 141-2-853T-69200 | Spring Plate            | 1    |
| D7        | 141-2-855T-64300 | Spring Coil              | 1    | J6        | 141-2-855T-65600 | Spring Coil             | 1    |
| D8        | 141-2-855T-64400 | Spring Coil              | 1    | J7        | 141-2-731T-85300 | Slide                   | 1    |
| D9        | 141-0-731T-84600 | Slide Ass'y              | 1    | J8        | 141-2-462T-65600 | Boss                    | 2    |
| D10       | 141-2-855T-64500 | Spring Coil              | 1    | J9        | 141-2-855T-65700 | Spring Coil             | 1    |
| D11       | 141-2-731T-84700 | Slide                    | 1    | K1        | 4-264T-09800     | Magnetic Coil           | 1    |
| D12       | 141-2-855T-64600 | Spring Coil              | 1    | K2        | 141-2-742T-58000 | Lever                   | 1    |
| D13       | 141-2-731T-84800 | Slide                    | 1    | K3        | 141-2-855T-65800 | Spring Coil             | 1    |
| D14       | 141-2-855T-64700 | Spring Coil              | 1    | K4        | 141-2-731T-85400 | Slide                   | 1    |
| D15       | 141-2-742T-57200 | Lever                    | 1    | K5        | 141-2-855T-65900 | Spring Coil             | 1    |
| E1        | 141-0-742T-52900 | Lever Ass'y              | 1    | K6        | 141-2-742T-58100 | Lever                   | 1    |
| E2        | 141-2-852T-65600 | Spring Wire              | 1    | K7        | 141-2-462T-65200 | Boss                    | 1    |
| E3        | 141-2-457T-25100 | Special Washer           | 2    | K8        | 141-2-747T-21600 | Bracket Lever           | 1    |
| E4        | 141-0-571T-19300 | Bearing Axis Ass'y       | 1    | L1        | 141-2-742T-58200 | Lever                   | 1    |
| E5        | 141-0-661T-31600 | Pulley Ass'y             | 1    | L2        | 141-2-462T-65800 | Boss                    | 1    |
| E6        | 141-2-453T-30100 | Washer                   | 2    | L3        | 141-2-747T-21700 | Bracket Lever           | 1    |
| E7        | 141-2-457T-23800 | Special Washer           | 1    | L4        | 141-2-365T-53600 | Bracket Switch          | 1    |
| E8        | 141-2-472T-01001 | Lug                      | 1    | L5        | 4-238T-22400     | Switch                  | 1    |
| E9        | 123-2-472R-00601 | Lug                      | 1    | L6        | 141-2-742T-58300 | Lever                   | 1    |
| E10       | 141-0-742T-52800 | Lever Ass'y              | 1    | L7        | 141-2-753T-96300 | Shaft                   | 1    |
| E11       | 141-0-742T-52710 | Lever Ass'y              | 1    | L8        | 141-2-457T-23000 | Special Washer          | 2    |
| E12       | 141-2-462T-62700 | Boss                     | 1    | M1        | 141-0-731T-85500 | Slide Ass'y             | 1    |
| E13       | 141-2-852T-66000 | Spring Wire              | 1    | M2        | 141-2-462T-65900 | Boss                    | 2    |
| E14       | 141-2-561T-05000 | Flat Belt                | 1    | M3        | 141-2-614T-05900 | Lever Lock              | 1    |
| E15       | 141-2-564T-23700 | Square Belt              | 1    | M4        | 141-2-852T-65700 | Spring Wire             | 1    |
| F1        | 141-0-673T-03800 | Slide Cum Ass'y          | 1    | M5        | 141-2-457T-35800 | Special Washer          | 1    |
| F2        | 141-2-855T-64900 | Spring Coil              | 1    | M6        | 4-238T-22500     | Switch                  | 1    |
| F3        | 141-2-673T-03900 | Slide Cum                | 1    |           |                  |                         |      |
| F4        | 141-2-457T-25100 | Special Washer           | 2    |           |                  |                         |      |
| F5        | 141-2-855T-65000 | Spring Coil              | 1    |           |                  |                         |      |
| F6        | 141-2-731T-84900 | Slide                    | 1    |           |                  |                         |      |
| F7        | 141-2-855T-65100 | Spring Coil              | 1    |           |                  |                         |      |
| F8        | 141-2-365T-53500 | Bracket Switch           | 1    |           |                  |                         |      |
| F9        | 4-238T-21900     | Switch                   | 2    |           |                  |                         |      |
| F10       | 4-238T-22000     | Switch                   | 2    |           |                  |                         |      |
| F11       | 4-238T-22600     | Switch                   | 1    |           |                  |                         |      |
| F12       | 4-235T-94600     | Socket                   | 1    |           |                  |                         |      |

| Key No.            | Part No. | Description                    | Q'ty | Key No.            | Part No. | Description                               | Q'ty |
|--------------------|----------|--------------------------------|------|--------------------|----------|-------------------------------------------|------|
| MECHANISM HARDWARE |          |                                |      | MECHANISM HARDWARE |          |                                           |      |
| Y1                 |          | Pan Head Screw 2x8mm           |      | Y12                |          | Pan Head Forming Screw 3x5mm              |      |
| Y2                 |          | Pan Head Screw 2x10mm          |      | Y13                |          | Pan Head Screw with Spring Washer 2x4mm   |      |
| Y3                 |          | Pan Head Screw 2.6x4mm         |      | Y14                |          | Pan Head Screw with Spring Washer 2.6x4mm |      |
| Y4                 |          | Pan Head Screw 2.6x6mm         |      | Y15                |          | Pan Head Screw with Spring Washer 2.6x5mm |      |
| Y5                 |          | Pan Head Screw 2.6x8mm         |      | Y16                |          | Pan Head Screw with Spring Washer 2.6x6mm |      |
| Y6                 |          | Flat Head Screw 2.6x4mm        |      | Y17                |          | Pan Head Screw with Spring Washer 3x5mm   |      |
| Y7                 |          | Flat Head Screw 2.6x5mm        |      | Y18                |          | Pan Head Screw with Spring Washer 3x6mm   |      |
| Y8                 |          | Binding Head Screw 2x5mm       |      |                    |          |                                           |      |
| Y9                 |          | Binding Head Screw 2x5mm       |      |                    |          |                                           |      |
| Y10                |          | Pan Head Forming Screw 2.6x4mm |      |                    |          |                                           |      |
| Y11                |          | Pan Head Forming Screw 2.6x5mm |      |                    |          |                                           |      |

MECHANISM EXPLODED VIEW

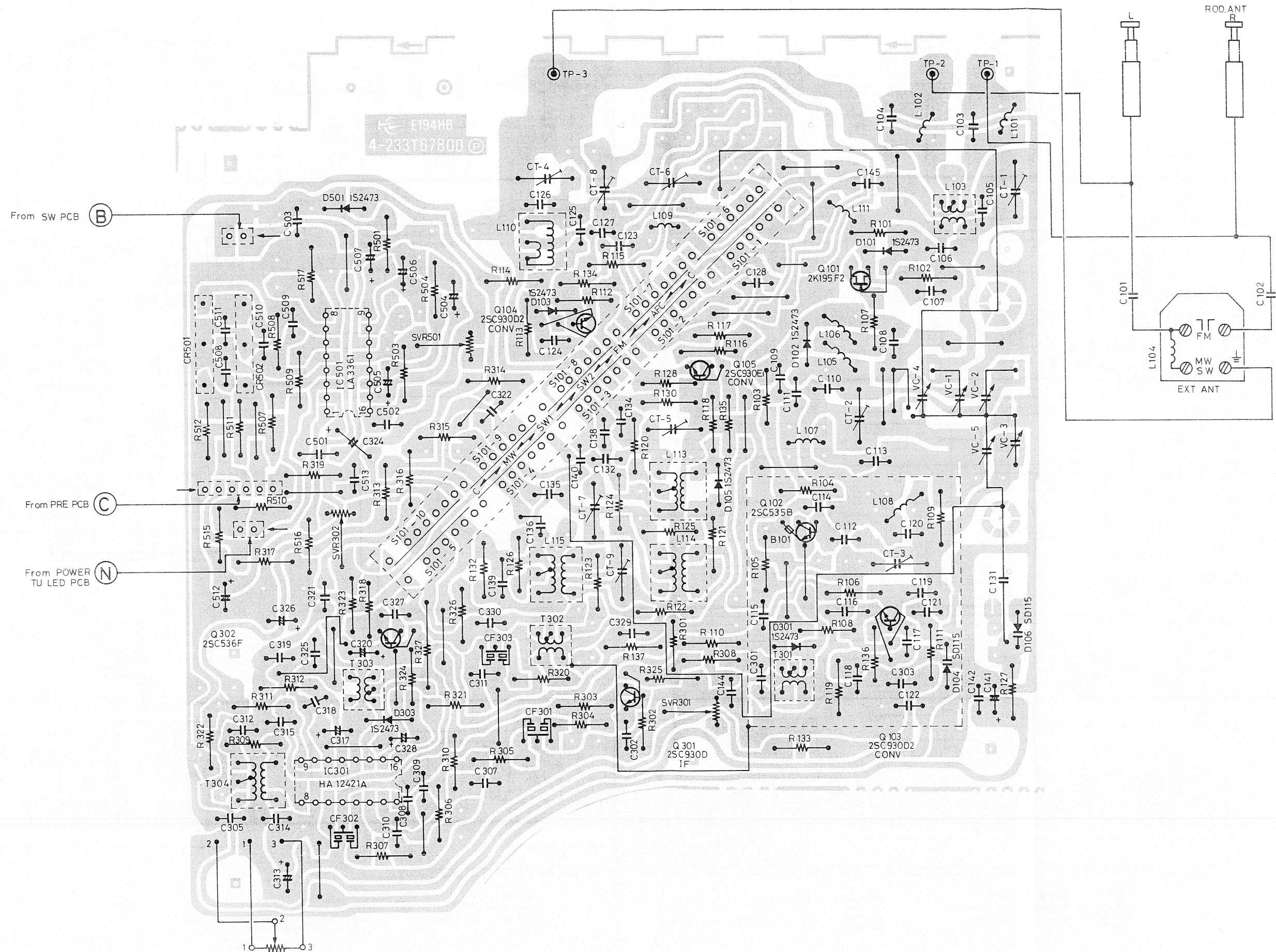


### SCHEMATIC DIAGRAM (TUNER)

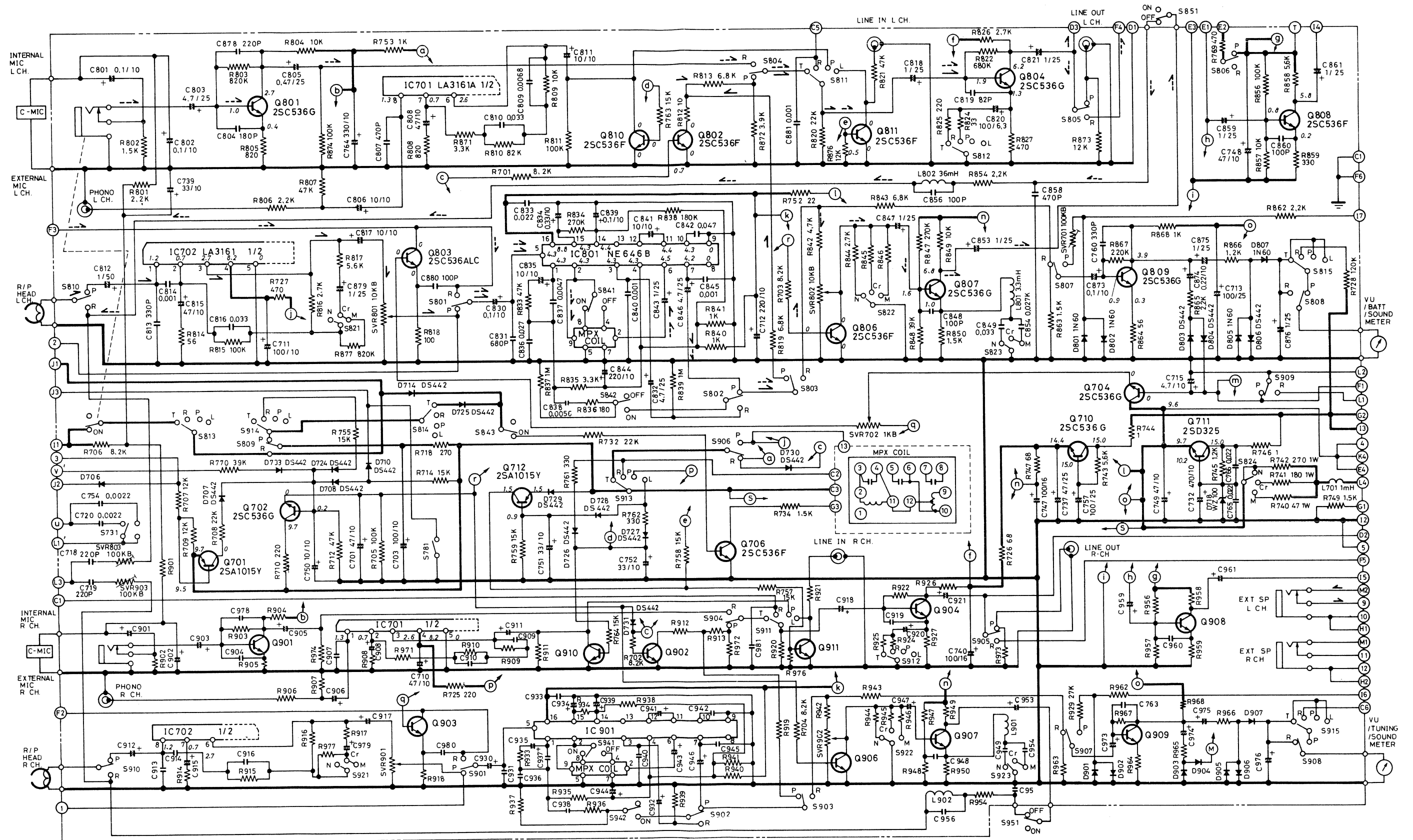


- indicates positive line.
- - indicates negative line.
- indicates signal flow in FM mode.
- ↔ indicates signal flow in AM mode.





# SCHEMATIC DIAGRAM (PRE AMP)



S731.....BEAT CANCEL SWITCH  
 S781.....MECHANISM PLAY SWITCH  
 S801~S810.....RECORD / PLAY SWITCH  
 S901~S910.....

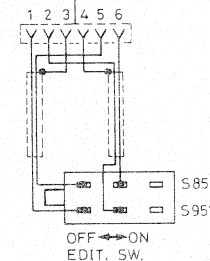
S811~S815.....FUNCTION SWITCH (TAPE / RADIO / PHONO / LINE)  
 S911~S915.....  
 S821~S823.....TAPE SWITCH (METAL / CrO2 / NORMAL)  
 S921~S923.....

S841~S843.....DOLBY NR SWITCH  
 S941~S943.....  
 S851, S951.....EDIT SWITCH

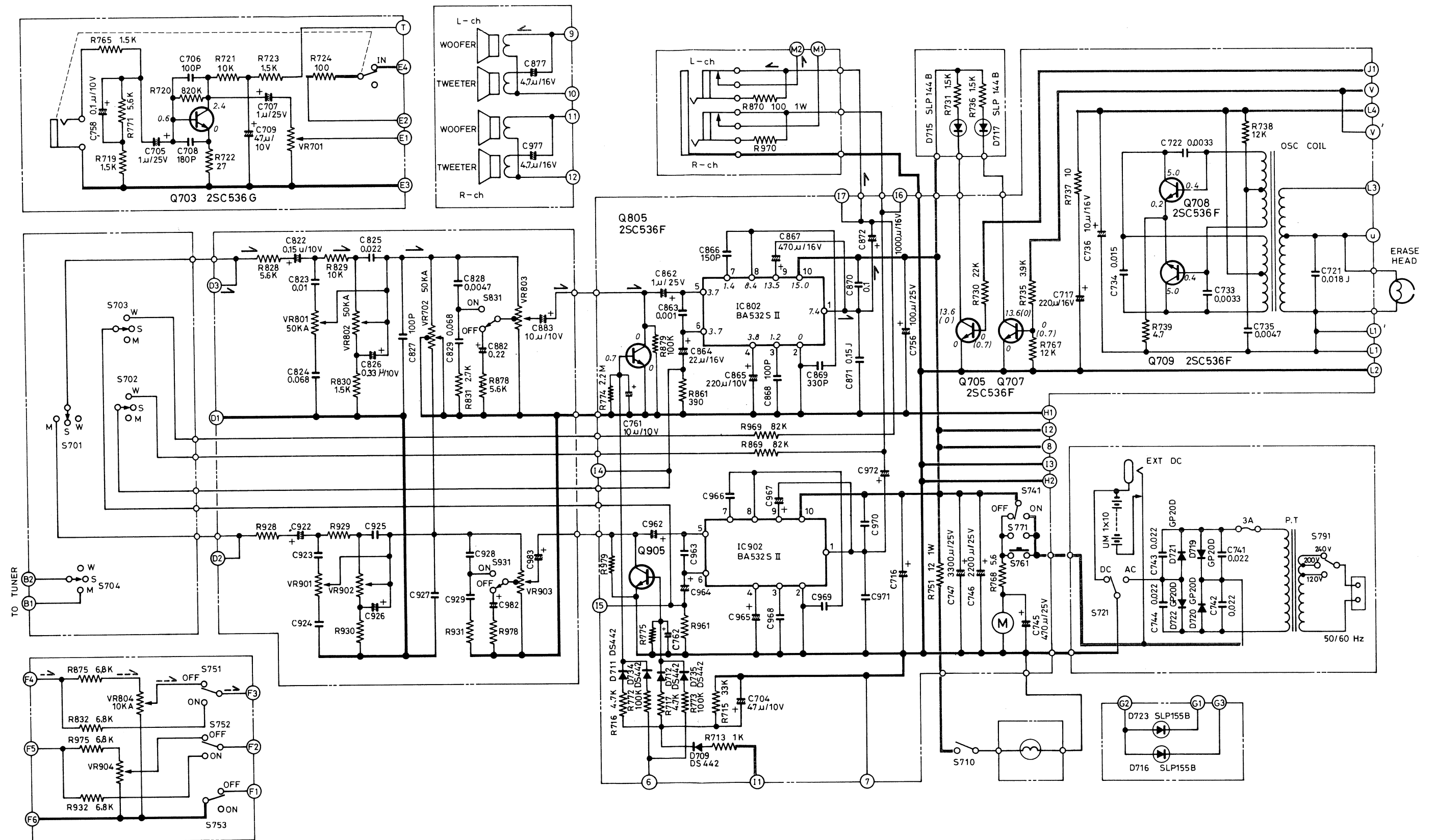
— indicates positive line.  
 — indicates negative line.  
 — indicates signal flow in PLAYBACK mode.  
 — indicates signal flow in RECORD mode.



### WIRING DIAGRAM (PRE AMP)



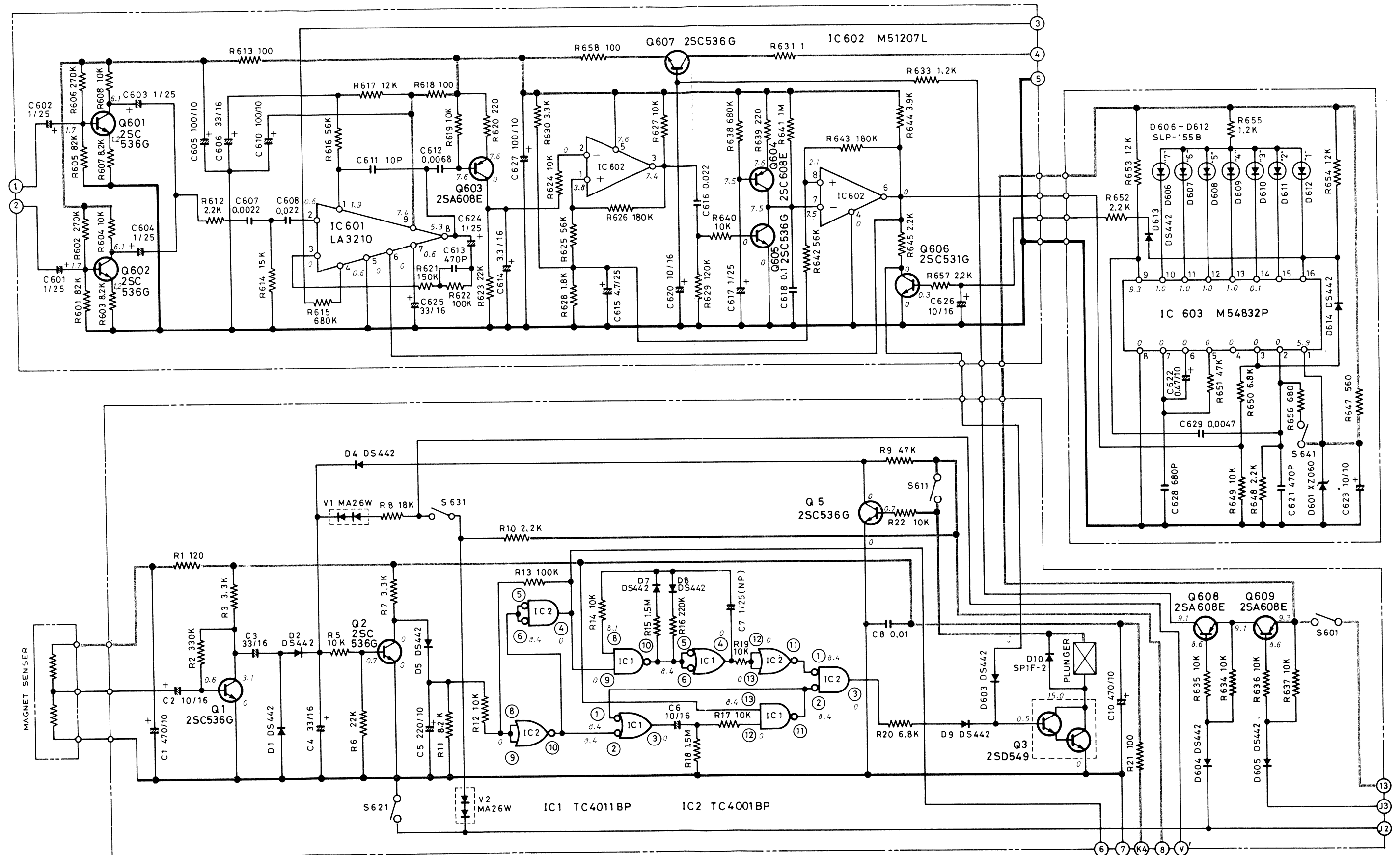
### SCHEMATIC DIAGRAM (MAIN AMP)







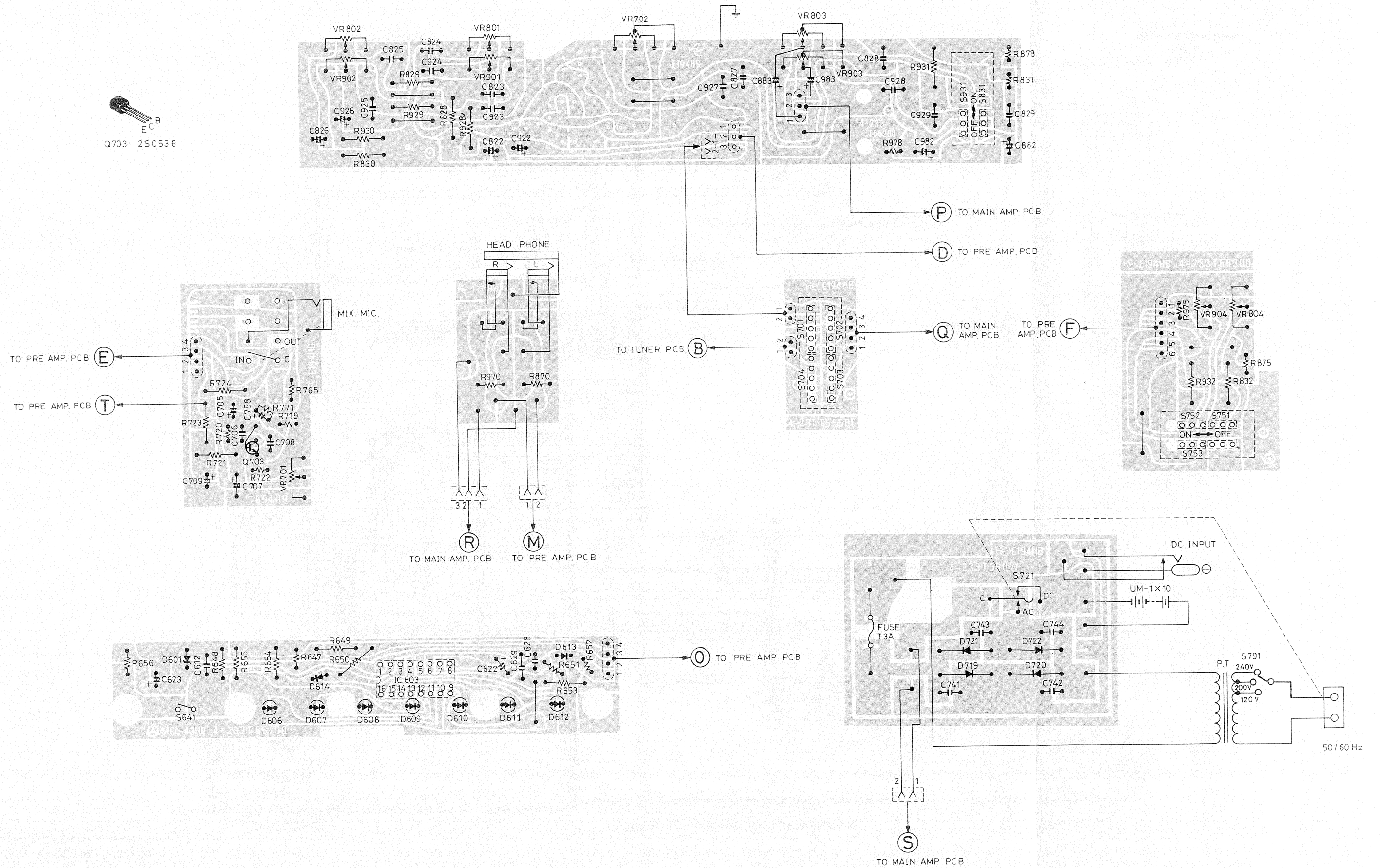
# SCHEMATIC DIAGRAM



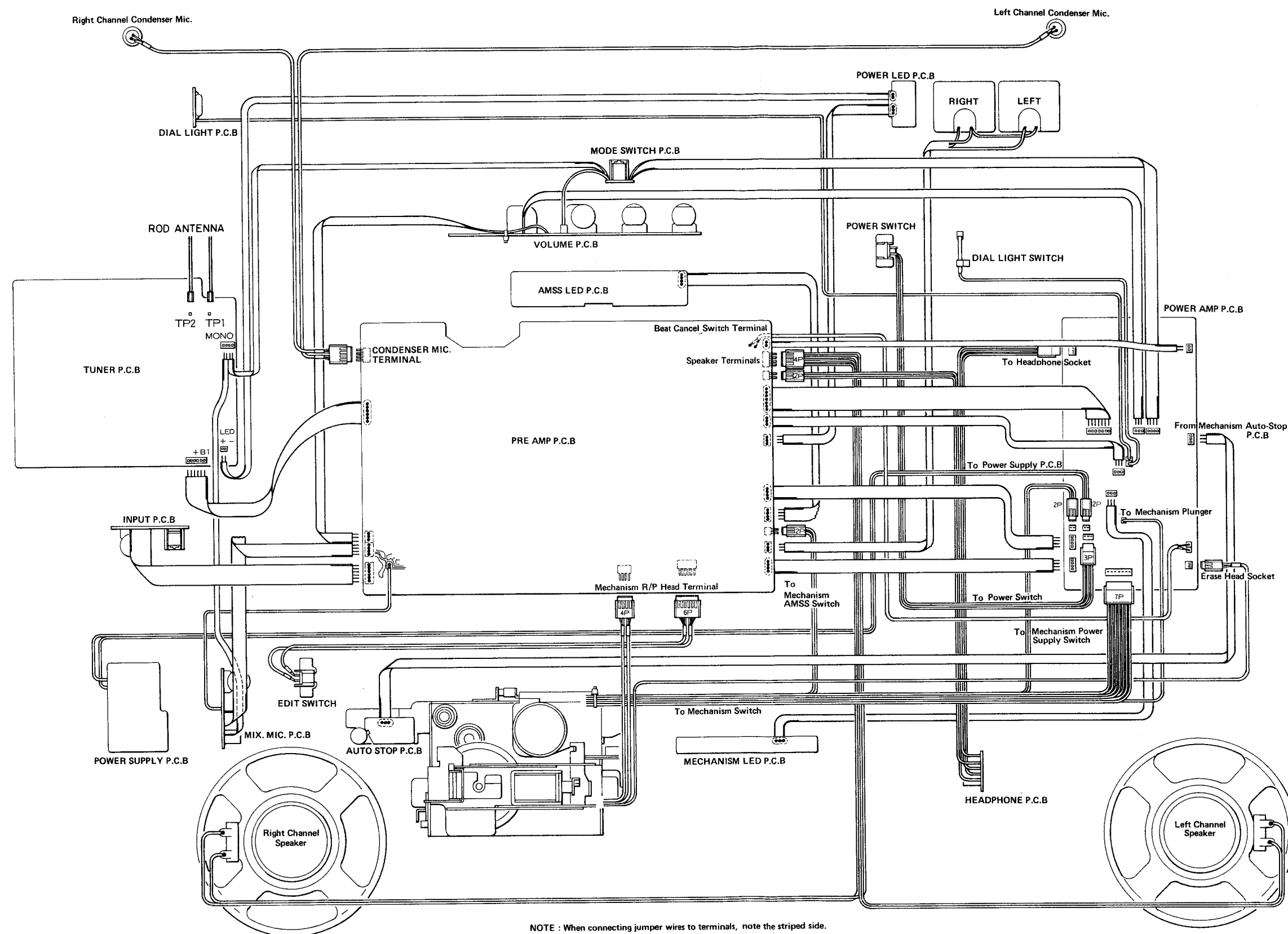
S601.....AMSS SWITCH  
 S611.....POWER SWITCH (FOR AUTO STOP)  
 S621.....FF. REW SWITCH  
 S631.....PAUSE SWITCH  
 S641.....MUSIC SELECT SWITCH



WIRING DIAGRAM



# CONNECTION



NOTE : When connecting jumper wires to terminals, note the striped side.

SANYO ELECTRIC TRADING CO., LTD.  
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